

ROYAL BOTANIC GARDENS, KEW.

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BULLETIN

OF

MISCELLANEOUS INFORMATION.

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No. 7]

[1915

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XXXI.—NEW TROPICAL AFRICAN SPECIES OF  
FICUS.

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The first account of the African species of *Ficus* was published by Miquel in 1849 in a paper entitled "Over de afrikaansche Vijge-Boomen." Therein are described, under what are now subgeneric names, 38 species from Tropical and 5 from South Africa, together with a few others from the Mascarene Islands, North East Africa, and the Orient.

For many years thereafter, the genus *Ficus* was left severely alone. The concluding part of De Candolle's Prodrômus, published in 1873, contains only a conspectus by Bureau and a brief account of the literature of the *Artocarpaceae*. In 1887-9 King remedied this defect as regards South-eastern Asia, but did not deal with Africa.

A large number of African species have been described by Warburg during the last few years, chiefly in Engler's Jahrbücher and in the publications of the Herbarium of the Brussels Botanic Garden. But the laborious task of a revision of the African species was at length undertaken by Dr. J. Mildbraed, of the Berlin Herbarium staff and botanical collector to the expeditions of the Duke of Mecklenburg through Central Africa. As Mildbraed was unable to finish his account owing to his departure on a second collecting trip, the work was completed by Dr. M. Burret, and was published in Engler's Jahrbuch for 1911. This revision contained descriptions of several new species, and altogether there were 94 species enumerated as occurring in Tropical Africa. The extensive material collected by Mildbraed on his first journey was included in this account.

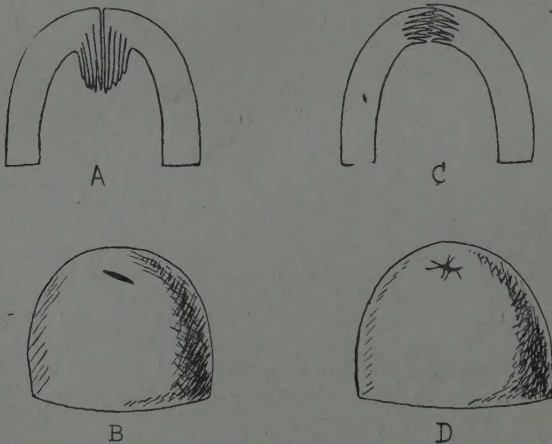
In working up the genus for the Flora of Tropical Africa, the abundant material gathered by Mildbraed on his second expedition was freely placed at my disposal, and he rendered me valuable assistance in its determination. His name, therefore, stands in the present paper as joint author of such of those species as are founded on his specimens.

In addition to the above, there had been extensive collecting of the genus in the Belgian Congo, where in number of species it is most richly represented in Tropical Africa. Many of these

proved to be new species, and were described by De Wildeman in Fedde's Repertorium for 1913. The same author published a complete list of the species of *Ficus* collected in the Belgian Congo, together with descriptions of a few new ones, in the Bull. Soc. Bot. Belg. vol. li.

At the present date there are 173 species of *Ficus* known from Tropical Africa, almost all of them being endemic. A key to these, with full descriptions of each species, will appear in the forthcoming parts of the Flora of Tropical Africa. The following notes are intended to show the general treatment of the species in that work as compared with the German revision. In the latter the species were arranged under 5 subgenera, as follows:—i. *CARICA*, Miq., one species; ii. *SYCOMORUS*, Gasp., 7 species; iii. *SYCIDIUM*, Miq., 6 species; iv. *UROSTIGMA*, Gasp., 6 species, and the remaining 73 species, under a new subgenus termed the *BIBRACTEATAE*, the members of which were included in *Urostigma* by Miquel. The present paper deals chiefly with the last subgenus, as Mildbraed and Burret's arrangement of the other four subgenera has been mainly followed, with the addition of a few new species (here described) and the revival of such as appeared to me to have been erroneously reduced. For these alterations the reader is referred to the forthcoming parts of the Flora already mentioned.

Mildbraed and Burret applied the name *Bibracteatae* to a large group of plants which were described as having two bracts at the base of the receptacle. But in the majority of the species of this group the basal bracts are very early caducous, and leave behind a frequently unilateral plate-like basal portion, from which it is nearly always impossible to ascertain the number of bracts. Indeed, I have found that in several species of this



Diagrams showing the two types of ostiole in the African species of *Ficus*—A and B, longitudinal section and surface view of receptacle of the *Bibracteatae*; C and D, the same of the other subgenera represented in Africa.

group there are three bracts in the young, or traces of three in the mature receptacles. A much better distinguishing feature for the whole of this subgenus is to be found in the arrangement of the bracts of the ostiole of the receptacle. In the other subgenera these bracts spread horizontally across the mouth of the ostiole, and several are visible from the outside (see diagram figs. C and D). In the *Bibracteatae*, however, the ostiole has quite a different appearance. From the outside it appears as a pore-like slit, much resembling\* the stoma of a leaf, with none of the bracts visible externally, but all of them abruptly reflexed and descending vertically into the receptacle (diagram figs. A and B).

The other subgenera are distinguished from one another chiefly by the number of stamens in the male flowers. This, though apparently a trifling character in itself, gives a very natural grouping of the species. The subgenus *Sycidium* is, however, further characterised, and differs from the other three in having the bracts, which are usually in a whorl at the base of the receptacle, scattered indiscriminately on the peduncle and frequently over the outer surface of the receptacle (fig. E).



The following is a key to the subgenera:—

Receptaculi ostiolum conspicue bracteatum,  
bracteis per orificem transverse radiantibus:—

Bracteae basales receptaculi verticillatae,  
solum ad apicem pedunculi dispositae:—

Flores masculi staminibus 3-6; folia dentata  
vel lobata, scabrida ... ..

I. CARICA.

Flores masculi plerumque staminibus 2;  
folia saepe dentata, scabrida vel hirsuta

II. SYCOMORUS.

Flores masculi stamine unico; folia semper  
integra et fere semper laevia, rarius  
pubescentia vel subscabrida ... ..

IV. UROSTIGMA.

Bracteae basales in pedunculis et receptaculis  
spiraliter dispositae, interdum minimae...

III. SYCIDIUM.

Receptaculi ostiolum poriforme, plus minusve  
bilabiatum, bracteis omnibus in receptaculi  
interiora abrupte reflexis ab extra non visis

V. BIBRACTEATAE.

Mildbraed and Burret divided the *Bibracteatae* into seven sections as follows, their characters being more or less indicated by their names:—i. *Platyphyllae*; ii. *Caulocarpae*; iii. *Fasciculatae*; iv. *Elegantes*; v. *Crassicostae*; vi. *Cyathistipulae*; vii. *Chlamydodorae*. On account of the addition of a great number of new species to this group, many of the differences which served to separate these sections have disappeared. In the



Flora of Tropical Africa the species have, therefore, been re-arranged into series and subseries as follows:—

Series I. *FASCICULATAE*. Receptacula in ramis efoliatis brevissimis fasciculatim disposita vel in trunco vel ramis primariis fasciculata; stipulae plerumque caducae.

Series II. *AXILLARES*. Receptacula axillaria, solitaria vel geminata; stipulae persistentes vel caducae.

Subseries i. *Stipulares*. Stipulae persistentes, plerumque magnae et conspicuae.

Subseries ii. *Caducae*. Stipulae caducae, plerumque parvae et inconspicuae.

The *Fasciculatae* form a very natural group of 28 species in which the receptacles are arranged in fascicles either on the main trunk or on the primary branches. So far as I am aware they never occur in these positions and also in the leaf-axils. The *Fasciculatae* embrace the sections *Caulocarpae*, *Fasciculatae* and *Elegantes* of Mildbraed and Burret.

The *Axillares* represent the remainder of the *Bibracteatae* in which the receptacles are borne either singly or in pairs in the leaf-axils of the young shoots. They are readily divided into two groups; the first the *Stipulares* (= section *Cyathistipulae*, Mildbr. & Burret) containing 23 very closely allied species distinguished by the persistent stipules, which are almost invariably large and conspicuous. Associated with this striking feature is a usually thick and more or less straw-coloured nervation of the leaves.

The second group, the *Caducae* (= sections *Platyphyllae*, *Crassicostae* and *Chlamydodorae*, Mildbr. & Burret), contains a large number of species, in all of which the stipules fall off immediately on the unfolding of the young leaves. It may be further separated into several smaller groups mostly on leaf-characters, to which I have not assigned special names. About seven species form a small group with *F. Leprieurii*, Mig. (= *F. triangularis*, Warb., of gardens) as a typical example, in which the leaves are obtriangular in shape, with the midrib frequently bifurcate towards the apex. Several species, such as *F. eriobotryoides*, Kth. & Bouché, are distinguished by their large basal bracts, which for a considerable time more or less completely invest the receptacles. About half the remainder of the *Caducae* have sessile receptacles, whilst further useful characters for classification are derived from the shape of the leaves, their nervation, venation and hairy covering, and the shape, size, and indumentum of the receptacles. In contrast with King's grouping of the Indian species, the African ones afford few determinative factors in the male and female flowers.

I am much indebted to Miss M. Smith for the sketches which accompany the following new species.

#### Subgenus SYCOMORUS, Gasp.

**F. golungensis**, Hutchinson; species subgeneris *Sycomori* imperfecte cognita, foliis basi 1-7 dentatis infra laxe reticulatis distincta.

Arbor 4-8 m. alta vel ultra, interdum parasitica, laticem viscidum exudens; truncus rectus, erectus, inferne nudus,

primum hirsutus; rami elongati, ascendentes, hirsuti, foliosi. *Folia* obovata vel elliptico-obovata, apice rotundata vel paulum acuminata, basi cordata, 18–28 cm. longa, 11–18 cm. lata, basi 1–7 dentata, dentibus magnis obtusis, ceterum integra, submembranacea, supra parce pilosa, infra pilis patulis albis longe pilosa, basi 7-nervia; nervi laterales utrinsecus 8–9, a costa sub angulo  $45^{\circ}$  abeuntes, intra marginem 1–4 cm. furcati, utrinque distincti, infra prominentes; nervi tertiarum laxè flexuosi, infra prominentes; petioli 2.5–12 cm. longi, robusti, hirsuti; stipulae ovato-lanceolatae, acuminatissimae, 1.3–3 cm. longae, purpurascens, deciduae. *Receptacula* ignota. *F. sp.*, Hiern in Cat. Afr. Pl. Welw. 1016.

Angola: Golungo Alto; forests of Queta Mts., parasitical on *Pseudospondias microcarpa*, Engl., Welwitsch 6409; Cuango river, Welwitsch 6347.

#### Subgenus SYCIDIUM, Miq.

**F. acutifolia**, Hutchinson; affinis *F. capreaefoliae*, Del., sed foliis alternis apice integris acuminatis nervis lateralibus patulis differt.

*Ramuli* graciles, foliosi, sicco purpurascens, primum parce hispidi. *Folia* lineari-lanceolata, sensim et obtuse acuminata, basi rotundata vel obtusa, 9–12 cm. longa, 2–3 cm. lata, integra, tenuiter chartacea, utrinque paulum scabrida; costa media utrinque prominens, supra angusta, infra latior, basi circiter 1 mm. lata, ad laminae apicem sensim angustata; nervi laterales utrinsecus 9–10, a costa sub angulo  $75^{\circ}$ – $90^{\circ}$  abeuntes, utrinque distincti, infra prominentes, marginem versus subrecti; nervi tertiarum laxè reticulati, infra prominentes; veni infra inconspicui; petioli breves, 4–6 mm. longi, paulum setuloso-pubescentes; stipulae caducae, lineari-lanceolatae, subacutae, 2.5 mm. longae, coriaceae, glabrae vel. fere glabrae. *Receptacula* axillaria, solitaria, subunculata, subglobosa, circiter 1.3 cm. diametro, breviter setulosa; pedunculi graciles, circiter 8 mm. longi, setulosi, bracteis 2–3 parvis sparsis muniti. *Ostium* subprominens, conspicue bracteatum, bracteis trans orem horizontaliter patulis. *Flores* ♂ longe pedicellati, pedicellis glabris; perianthii segmenta lanceolata, subacuta, membranacea, glabra; stamen solitarium; anthera obtusa. *Flores* ♀ breviter pedicellati; achenia laevia, stylo gracile. *Flores* insectiferi pedicellati.

Cameroons: Bipinde, Zenker 1709.

Chevalier's No. 12228 from Kollangui, French Guinea, seems to be this species; there are no receptacles on the Kew specimen.

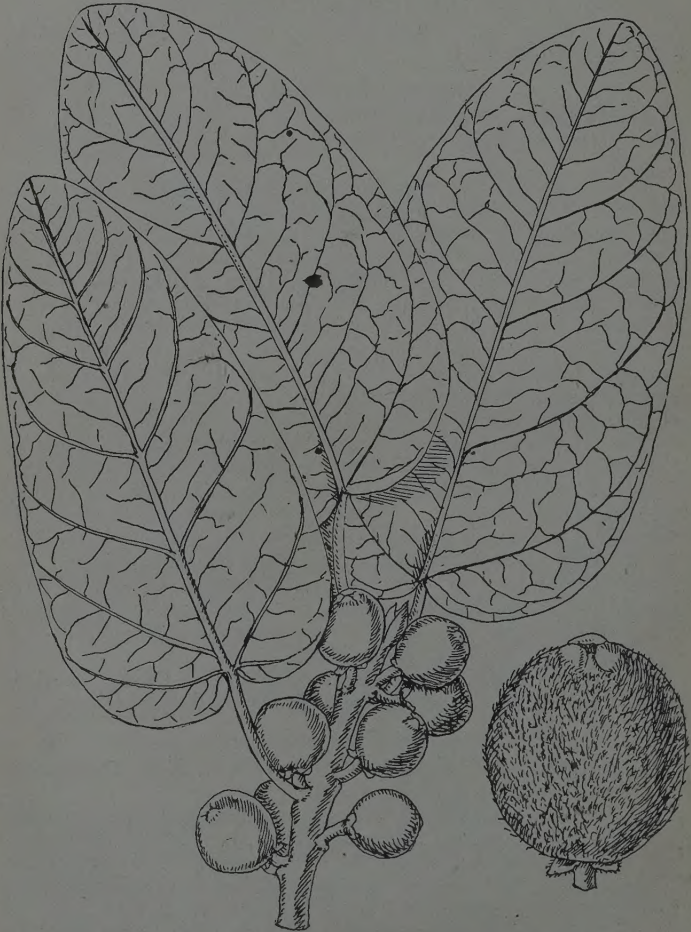
#### Subgenus UROSTIGMA, Gasp.

**F. katagumica**, Hutchinson; a *F. ingentii*, Miq., receptaculis molliter et dense tomentosus recedit.

*Arbor* umbrosa; ramuli foliosi, molliter tomentosi, sulcati. *Folia* ovato-oblonga vel oblongo-elliptica, basi leviter cordata vel rotundata, apice rotundata, 6–10 cm. longa, 3–6.5 cm. lata, integra, rigide subcoriacea, utrinque glabra et subglauca; costa media utrinque prominens, infra basi circiter 2 mm. lata, ad laminae apicem sensim angustata sed furcati; nervi laterales



utrinsecus 5-6, a costa sub angulo  $60^{\circ}$  abeuntes, intra marginem prominenter bifurcati, utrinque distincti, graciles, straminei; veni supra quam infra prominentiores, reticulationem intricatum formantes; petioli 2-2.5 cm. longi, basin versus tomentosi, straminei, stipulae caducae, coriaceae, tomentosae. *Receptacula* axillaria, solitaria vel geminata, pedunculata, globosa vel leviter obovoideo-globosa, 1 cm. diametro, dense albo-tomentosa; pedunculi 4-6 mm. longi, 1.5 mm. crassi, dense et molliter tomentosi. *Bractee* basales 3, plus minusve ovatae, obtusae, subpersistentes, basin versus pubescentes. *Ostiolum* leviter prominens, extra bracteatum, bracteis glabrescentibus. *Flores* ♂ subsessiles,



*Ficus katagumica*, Hutchinson; nat. size; separate receptacle  $\times 2\frac{1}{2}$ .

perianthii segmentis acutis; stamen unicum, filamentum breve; anthera lata. *Flores* ♀ perianthio ut in floribus ♂. *Flores* insectiferi pedicellati.

Northern Nigeria: Katagum district, Dalziel 305.

**F. kawuri**, *Hutchinson*; affinis *F. ingentei*, Miq., receptaculis dense albo-tomentosis differt.

*Arbor* magna; ramuli foliosi, molliter dense tomentosi. *Folia* oblonga vel oblongo-lanceolata, basi plerumque truncata, vel interdum leviter cordata, apice obtuse et breviter acuminata, 7-18 cm. longa, 3-7.5 cm. lata, integra, tenuiter chartacea, utrinque costa media supra excepta glabra et opaca; costa supra in parte inferiore pubescens, infra prominens, basi circiter 2.5 mm. lata, ad laminae apicem sensim angustata; nervi laterales utrinsecus 8-10, a costa sub angulo 45°-60° abeuntes, utrinque prominentes sed subgraciles, intra marginem conspicue bifurcati; veni utrinque prominentes, conspicue reticulati; petioli 2.5 cm. longi, sulcati, molliter pubescentes; stipulae caducae, extra tomentosae. *Receptacula* in axillis defoliatis disposita, solitaria vel geminata, pedunculata, subglobosa, circiter 1 cm. diametro, molliter et dense albo-tomentosa; pedunculi 5 mm. longi, teretes, tomentosi. *Bractae basales* subpersistentes, extra rubro-pubescentes. *Ostiolum* extra bracteatum; bractae interiores patulae. *Flores* ♂ circum ostiolum conferti, sessiles; perianthii segmenta membranacea, glabra; anthera solitaria, subsessilis. *Flores* ♀ breviter pedicellati; achaenia obovoidea, laevia; stylus lateralis, stigmatibus sublacerato. *Flores* insectiferi pedicellati.

Northern Nigeria: Lokoja, and common in all Northern Nigeria, Dalziel 910. Cameroons: between Kanjang and Boki, Ledermann 3691.

**F. ingentoides**, *Hutchinson*; a *F. kawuri*, *Hutchinson*, receptaculis subsessilibus recedit.

*Ramuli* juniores molliter tomentosi, foliosi. *Folia* oblongo-lanceolata, vel ovato-oblonga, basi rotundata vel leviter cordata, apice breviter et obtuse acuminata, 6-13 cm. longa, 2.5-6 cm. lata, integra, tenuiter coriacea, utrinque opaca et glabra vel supra nitidula; costa media utrinque distincta, ad laminae apicem sensim angustata; nervi laterales utrinsecus 8-10, a costa sub angulo 80° abeuntes, utrinque distincti, intra marginem bifurcati; veni utrinque reticulationem gracilem formantes; petioli 2-3 cm. longi, pubescentes, demum glabri vel fere glabri; stipulae caducae, coriaceae, extra pubescentes. *Receptacula* in axillis defoliatis disposita, breviter pedunculata, globosa vel leviter obovoideo-globosa, circiter 1 cm. diametro, molliter tomentosa; pedunculi 2 mm. longi vel subnulli, robusti, tomentosi. *Bractae basales* persistentes, extra leviter pubescentes, intra glabrae. *Ostiolum* extra parce bracteatum, bracteis puberulis. *Flores* ♂ subsessiles; perianthii segmenta membranacea; stamen solitarium; anthera longior quam lata. *Flores* ♀ sessiles; achaenia laevia; stylus gracilis, stigmatibus acuto. *Flores* insectiferi pedicellati. *F. Stuhlmannii*, var. *glabrifolia*, Warb. in Engl. Bot. Jahrb. xx. 162. *F. lutea*, Mildbr. et Burret in Engl. l.c. xlv. 209, partim, non Vahl.

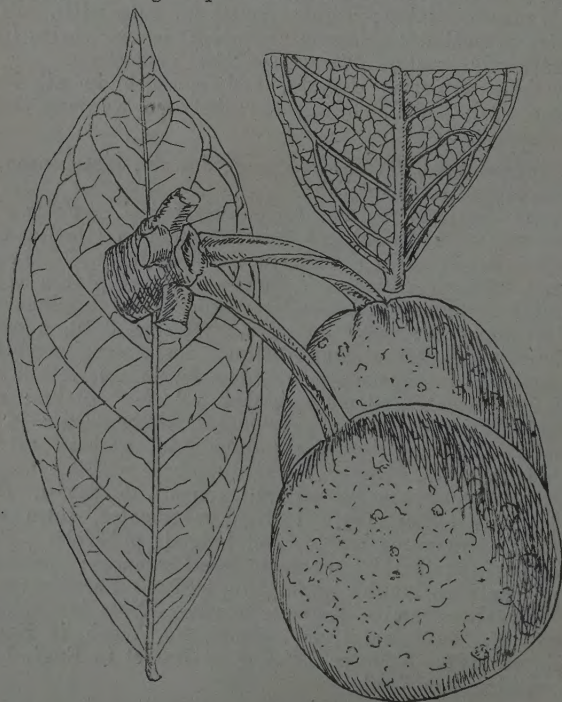


Eritrea: neighbourhood of Acrur, *Schweinfurth* 1687. German East Africa: Usukuma; Njangesi, *Stuhlmann* 4144; Victoria Nyanza; Bussisi, *Stuhlmann* 750; Muansa, *Stuhlmann* 4585.

Subgenus BIBRACTEATAE, *Mildbr. & Burret*.

**F. Buntingii**, *Hutchinson*; affinis *F. ugandensi*, *Hutchinson*, nervis lateralibus numerosioribus ad folii basin dense dispositis differt.

*Epiphytica*; caulis usque ad 1 m. circumdato; ramuli juniores elongati, ad apicem attenuati, costati, glabri. *Folia* elongato-oblonga, sensim et obtuse acuminata, basi rotundata vel obtusa, 10–16 cm. longa, 2.5–4 cm. lata, integra, supra nitida, infra opaca et glabra; costa media supra plana, infra prominens, ad laminae apicem sensim attenuata; nervi laterales utrinsecus circiter 10, a costa sub angulo  $75^{\circ}$  abeuntes, arcuati, prope marginem conjuncti, infra prominentes; nervi tertiarii reticulati, venis infra arcte reticulatis; petioli circiter 1.2 cm. longi, glabri, supra sulcati; stipulae mox caducae, parvae, acutae. *Receptacula* fasciculata, in ramulis brevissimis efoliatis ex trunco ortis disposita, pedunculata, subglobosa, maturate circiter 4.5 cm., siccio circiter 3 cm. diametro, parietibus percrassis, basi cordata, strigilloso-pubescentia; pedunculi 3 cm. longi, recurvati, robusti, puberuli. *Bractee basales* caducae, ex icone plus minusve lanceolatae et circiter 1.5 cm. longae, probabiliter membranaceae. *Ostiolum*



*Ficus Buntingii*, *Hutchinson*; nat. size; base of leaf  $\times 2$ .



parvum et poriforme, bracteis omnibus in receptacula descendentibus. *Flores* ♂ satis longe pedicellati, anthera solitaria obtusa. *Flores* ♀ pedicellati; stigmata papillosa.

Liberia: Mano River bank in the Gola Forest, *Bunting in Herb. Mus. Brit.*

According to the collector the latex and fruits of this species are worthless.

**F. ugandensis**, *Hutchinson*; affinis *F. Gossweileri*, *Hutchinson*, foliis laxe reticulatis basi late rotundatis, receptaculis basi rotundatis differt.

*Arbor* 10 m. alta vel ultra; ramuli cortice cinereo glabro obtecti. *Folia* elliptica vel oblongo-elliptica, basi rotundata, breviter acuminata, 5–11.5 cm. longa, 2.5–5.5 cm. lata, integra, chartacea, supra pustulata, infra glabra et leviter nitida; costa media supra plana, infra prominens, basi 1 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 9–11, a costa sub angulis 45°–60° abeuntes, suboppositi, utrinque prominentes, marginem versus conjuncti et ramosi; nervi tertiarum venique infra laxe reticulati; petioli 2–3 cm. longi, valide sulcati, glabri; stipulae caducae. Receptacula in ramis principibus fasciculata, pedunculata, ellipsoideo-globosa, circiter 3 cm. longa, puberula; pedunculi 2 cm. longi, circiter 2.5 mm. crassi, minute puberuli. *Bractee basales* mox deciduae, non visae. *Ostiolum* bilabiatum, subinconspicuum, bracteis omnibus in receptacula descendentibus. *Flores* ♂ breviter pedicellati; perianthii segmenta 4–5, lineari-lanceolata, subacuta, membranacea, glabra; stamen solitarium, filamentum breve; anthera ovoidea, obtusa. *Flores* *insectiferi* longe pedicellati.

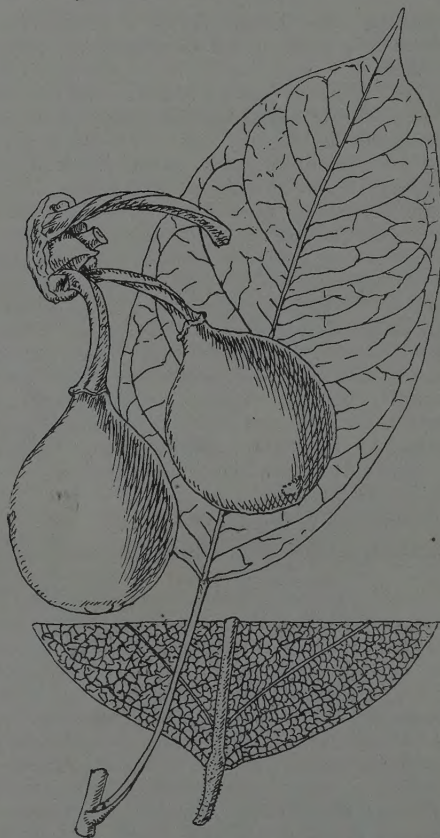
Uganda: Buddu, 1200 m., *Dawe* 256.

**F. Gossweileri**, *Hutchinson*; affinis *F. ugandensi*, *Hutchinson*, quam vidi.

*Arbor* 16 m. alta, trunco irregulare et corona lata; rami patuli, supra ramulis efoliatis fructiferis 5–10 cm. longis ornati; ramuli juniores breves, glabri vel interdum tenuiter puberuli. *Folia* oblonga vel oblongo-elliptica, subabrupte acuminata, acumine 1.5–8 mm. longo, obtusa, basi truncata vel leviter rotundata, 5–10 cm. longa, 2.5–5 cm. lata, integra, chartacea, sicco utrinque opaca, infra arcte et tenuiter reticulata; costa media supra leviter impressa, infra prominens, basi 1–1.5 mm. crassa, ad laminae apicem attenuata et pergracilis; nervi laterales utrinsecus 9–10, a costa media sub angulo 60° abeuntes, pergraciles, prope marginem conjuncti, utrinque distincti; nervi tertiarum laxi et inconspicui; petioli 2.5–7.5 cm. longi, graciles, minute puberuli; stipulae caducae, lanceolatae, longe acuminatae, circiter 1.2 cm. longae, subcoriaceae, glabrae. *Receptacula* fasciculata, in ramulis brevissimis ex ramis principibus ortis disposita, pedunculata, obovoidea, basi contracta, 3–5 cm. longa, 2–2.5 cm. diametro, arcte maculata, molliter pubescentia; pedunculi 2–2.5 cm. longi, circiter 1.5 mm. crassi, sicco angulares et contorti, molliter pubescentes. *Bractee basales* mox deciduae. *Ostiolum* leviter elevatum, subtomentosum, bilabiatum; bractee omnes in receptacula descendentes, duae prope orificem lineares, obtusae, 6 mm. longae, subcarnosae, glabrae, ceteris acute acuminatis. *Flores* ♂

breviter pedicellati; perianthii segmenta obovato-oblongata, apice rotundata, glabra; stamen solitarium, ad filamenti basin stylo gracile evolutum; filamentum 1 mm. longum; antherarum loculi basi divergentes, apice connectivo leviter producto. Flores ♀ perianthii segmentis acute acuminatis; stylus gracilis, stigmatibus florum numerosorum coherentibus.

Angola: Malange district; M'Bango woods, Gossweiler 1005.



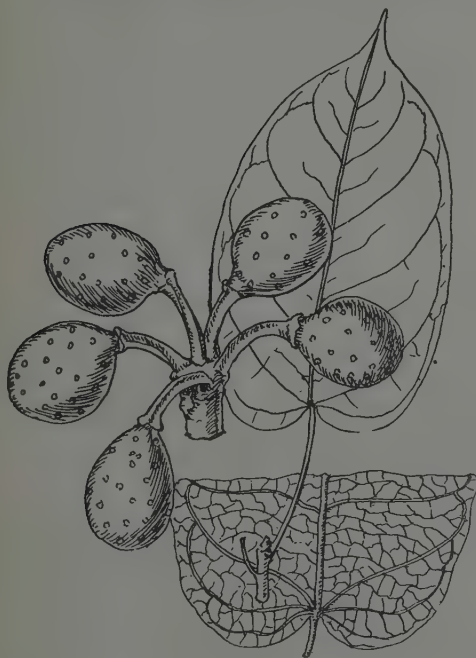
*Ficus Gossweileri*, Hutchinson; nat. size; base of leaf  $\times 2$ .

**F. rudens**, Hutchinson; species affinis *F. tremulae*, Warb., Africae orientalis incolae, sed foliis ambitu, receptaculis majoribus, pedunculis robustioribus differt.

*Scandens*; caules molles, rudentiformes (Gossweiler), usque ad 18 m. alti; ramuli graciles, glabri. *Folia* oblongo-elliptica vel leviter obovato-elliptica, acute acuminata, acumine 6–10 mm. longo, basi cordata, 3.5–7.5 cm. longa, 2–3.5 cm. lata, integra, submembranacea, utrinque glabra et opaca; costa media supra leviter impressa, gracilis, infra satis prominens, basi circiter



0.5 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 6-7, a costa sub angulo  $90^\circ$  abeuntes, prope marginem conjuncti, graciles, infra distincti; veni infra laxi et distincti; petioli 0.8-2 cm. longi, pergraciles, glabri; stipulae deciduae, non visae. *Receptacula* in trunco gesta, in ramis efoliatis brevissimis fasciculata, circiter 6-nata, pedunculata, ellipsoidea vel obovoideo-ellipsoidea, basi leviter contracta, 2 cm. longa, 1.3 cm. diametro, tenuiter verrucosa, minutissime puberula; pedunculi



*Ficus rudens*, Hutchinson; nat. size;  
base of leaf  $\times 2$ .

robusti, 1.3 cm. longi, compressi, 2 mm. crassi, minute puberuli. *Bracteae basales* mox caducae. *Ostiolum* minimum, bilabiatum, non productum; bracteae omnes in receptacula descendentes, plus minusve subulato-lanceolatae, acutae, glabrae. *Flores*  $\delta$  pedicellati; perianthii segmenta 3, elliptica, subacuta; stamen solitarium; filamentum satis robustum; anthera ovoideo-ellipsoidea, obtusa. *Flores*  $\eta$  subsessiles; perianthii segmenta lanceolata; achenia oblique ellipsoidea; stylus lateraliter insertus, acheniis brevior, stigmatibus longe papilloso. *Flores insectiferi* numerosi, pedicellati.

Angola: eastern slopes of Monte de Lau and Monte Bello, Gossweiler 4597.

*F. maculosa*, Hutchinson; affinis *F. Pynaerti*, De Wild., sed foliis basi obtusis nec rotundatis, nervis basalibus ascendentibus, pedunculis longioribus differt.

*Arbor* parva; rami teretes, fructiferi 1.3-2 cm. crassi, cortice cinereo et parce lenticellato; ramuli juniores foliosi, satis graciles glabri. *Folia* oblonga vel oblongo-elliptica, obtuse acuminata, basi obtusa, 9-17 cm. longa, 5-6.5 cm. lata, integra, tenuiter chartacea, utrinque opaca et glabra; costa media supra plana, infra prominens, basi circiter 1.5 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 6-8, a costa sub angulo  $75^\circ$  abeuntes, infra prominentes, marginem versus conjuncti, satis graciles; nervi tertiarum ad laterales subparalleli; veni infra prominentes, laxe reticulati; petioli 2.5 cm. longi, graciles, glabri; stipulae mox caducae, lineari-lanceolatae, acutissime acuminatae, 2 cm. longae, subcoriaceae, glabrae. *Receptacula* 3-5-nata, in ramis efoliatis fasciculata, pedunculata, anguste obovoideo-ellipsoidea, basi stipitata, stipite 2-2.5 mm. longo,

glabra, sicco straminea et maculata, haud verrucosa; pedunculi graciles, 2 cm. longi, contorti et angulares, minutissime puberuli. *Bractee basales* parvae et caducae, basi oblique connatae et persistentes. *Ostiolum* leviter productum, minutum, poriforme; bractee omnes in receptacula descendentes, lineares, acutae, ad 4 mm. longae, marginibus membranaceis. *Flores* ♂ stamino solitario inclusi. *Flores* ♀ subsessiles, stigmatibus magnis papillosis. *F. polybractea*, Mildbr. et Burret in. Engl. Bot. Jahrb. xlv. 225, partim.

Togoland: Sokode; Barariruoba Tamberna village, Kersting A 545.

**F. fasciculiflora**, Hutchinson; affinis *F. Scheffleri*, Warb., sed nervis lateralibus paucioribus differt.

*Arbor* 15–18 m. alta; corona lata; rami fructiferi teretes, cortice cinereo obtecti; ramuli juniores graciles, glabri, sicco nigrescentes. *Folia* obovata vel obovato-oblongata, sensim acuminata, basi cuneata, 7.5–14 cm. longa, 3–5.5 cm. lata,



**Ficus fasciculiflora**, Hutchinson; nat. size; base of leaf  $\times 2$ .

integra, rigide chartacea, glabra, sicco opaca et rubro-brunnea; costa media supra impressa, infra prominens, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 7–8, a costa sub angulo  $45^{\circ}$ – $70^{\circ}$  abeuntes, infra prominentes, prope marginem conjuncti; veni infra tenuiter reticulati, sicco nigrescentes; petioli 2.5–4.5 cm. longi, graciles, glabri vel minutissime puberuli; stipulae caducae, linearilanceolatae, longe et acute acuminatae, 2–2.5 cm. longae, glabrae. *Receptacula* in ramis principibus fasciculata, circiter 4-nata, pedunculata, nigro-viridia, maculis parvis et magnis viridibus punctata, ellipsoidea, basi leviter contracta, 1.2–1.5 cm. longa, circiter 0.8 cm. diametro, minute puberula; pedunculi 1–3 cm. longi, satis robusti, minutissime puberuli. *Bractee basales* ovatae, submembranaceae, glabrae, subpersistentes, demum recurvatae. *Ostiolum* orbiculare, parvum et poriforme; bractee paucae, omnes in receptacula longitudinaliter descen-



dentés. *Flores* ♂ subsessiles; perianthii segmenta oblanceolata, membranacea, glabra; stamen solitarium; filamentum 1 mm. longum; anthera ovoidea, obtusa. *Flores* ♀ subsessiles. *Flores insectiferi* longe pedicellati.—*F. Gilletii*, Mildbr. et Burret in Engl. Bot. Jahrb. xlv. 229, partim.

Cameroons: Tibati Lake, *Ledermann* 2410.

**F. praticola**, Mildbr. et Hutchinson; species affinis *F. stipuliferae*, Hutchinson, sed foliis latioribus, receptaculis minoribus distincta.

*Frutex* epiphyticus, ramulis subacute angulatis circiter 3 mm. diametro glabris cortice cinereo laeve obtectis. *Folia* oblongo-elliptica, longe acuminata, acumine 2.5–3 cm. longo ad apicem subobtusum angustato, basi obtusa vel leviter rotundata, 15–19 cm. longa, 4.5–6 cm. lata, integra, coriacea, utrinque glabra, supra pallide viridia, infra flavescentia; costa infra prominens, inferne acute carinata, basi 1.5 mm. lata, apicem versus sensim angustata; nervi laterales utrinque circiter 11, sub angula 90° a costa abeuntes, infra prominentes, prope marginem jungentes; nervi tertiarum quam laterales parum minus prominentes, leviter flexuosi, venis infra crassis; petiolus gracilis, 1.3–2.5 cm. longus, supra anguste canaliculatus, lenticellis parvis nigris maculatus, glaber; stipulae persistentes, intrapetiolares, ramulos circumdatae, anguste lanceolatae, acute longe acuminatae, 2–2.5 cm. longae, membranaceae, sicco rubro-purpureae, glabrae. *Receptacula*



*Ficus praticola*, Mildbr. et Hutchinson; nat. size; base of leaf  $\times 2$ .

axillaria, sessilia, estipitata, leviter depresso-globosa, 1·3–2 cm. diametro, ostiolo glabrescente producto, verrucis linguiformibus glabris instructa, strigilloso-pubescentia. *Bractee basales* 2, basi connatae, ad receptaculum adpressae, suborbiculares, 3 mm. latae, membranaceae, glabrae. *Ostiolum* bilabiatum, extra non bracteatum; os circiter 1·5 mm. latum; bractee omnes descendentes, lineares, membranaceae, glabrae. *Receptaculi paries* circiter 2 mm. crassus, carnosus. *Flores* ♂ subsessiles; perianthii segmenta 3, ovato-lanceolata, membranacea, glabra, circiter 1·5 mm. longa; stamen unicum; filamentum 1 mm. longum; anthera 1 mm. longa, mucronata. *Flores* ♀ pedicellati, pedicellis ad 2 mm. longis; perianthii segmenta 3, lanceolata, acuta, 1·5 mm. longa, membranacea, glabra. *Achaenia* laevia; stylus gracilis, stigmatem magno papilloso. *Receptaculi squamae* subulato-lanceolatae, acutae, 2 mm. longae, superne membranaceae.

Fernando Po: grasslands of Moka, in the south-east of the island, 1200–1800 m., *Mildbraed* 7106.

**F. stipulifera**, *Hutchinson*; affinis *F. praticolae*, *Mildbr.* et *Hutchinson*, quam vidi.

*Frutex* vel arbor parva; ramuli angulares, parcissime pubescentes cortice cinereo obtecti. *Folia* lanceolata vel lineari-lanceolata, sensim et obtuse acuminata, basi angustata, 7·5–13 cm. longa, 2·5–3 cm. lata, integra, chartacea, supra punctata, utrinque glabra et opaca vel infra leviter nitida; costa media supra plana, infra prominens, basi circiter 1·5 mm. lata, ad laminae apicem sensim angustata; nervi laterales utrinsecus 9–11, a costa sub angulo 90° abeuntes, fere recti, prope marginem conjuncti; nervi tertiarum quam laterales minus prominentes, reticulati, satis laxi, infra distincti; veni infra subindistincti et laxi; petioli 1·3 cm. longi, graciles, glabri, circiter 1 mm. crassi; stipulae persistentes, ramulos juniores subdense indutae, lanceolatae, acutae, usque ad 2 cm. longae, membranaceae, glabrae. *Receptacula* probabiliter axillaria, sessilia? subglobosa, 2·5 cm. diametro, prominenter verrucosa, verrucis sicco rubris, breviter strigilloso-pubescentia. *Bractee basales* 2, basi connatae, ovato-orbiculares, apice rotundatae, circiter 2·5 mm. longae, fere 4 mm. latae, membranaceae, glabrae. *Ostiolum* haud prominens, bilabiatum, bracteis omnibus in receptacula descendentibus. *Flores* ♂ pedicellati; perianthii segmenta subulato-lanceolata, membranacea, glabra; stamen solitarium, filamentum breve, anthera 1–1·25 mm. longa, minute mucronata. *Flores* ♀ pedicellati; perianthii segmenta 3, inaequalia, subulato-lanceolata, acutissima, membranacea. *Achaenia* ellipsoidea, laevia; stylus achaenio paullo brevior, bifidus.

Uganda: South Buddu, 1100 m., *Dawe* 301.

**F. camptoneuroides**, *Hutchinson*; affinis *F. camptoneurae*, *Mildbr.*, sed receptaculis dense et breviter pubescentibus differt.

*Frutex* epiphyticus magnus vel arbor parva usque ad 7 m. alta; ramuli graciles, acute angulares vel costati, glabri. *Folia* elliptica vel oblongo-elliptica, sensim et obtuse acuminata,



acumine fere 2 cm. longo, ad basin leviter angustata vel rotundata, 10–16 cm. longa, 4–7 cm. lata, integra, chartacea, utrinque opaca et glabra; costa media supra leviter impressa, infra prominens, basi circiter 2 mm. lata, ad acuminis apicem sensim attenuata; nervi laterales utrinsecus 5, a costa sub angulo  $45^{\circ}$  abeuntes, arcuati, utrinque prominentes, intra marginem conjuncti; nervi tertiarum ramosissimi, sublati, utrinque cum venis arctis prominentes; petioli 1.3–2.5 cm. longi, vix 2 mm. crassi, brevissime et parce pubescentes; stipulae persistentes, lanceolatae, obtusae, 1.2–1.5 cm. longae, basi circiter 4 mm. latae, subchartaceae, glabrae. *Receptacula* axillaria, sessilia, subglobosa, apice paulum complanata, fere 2 cm. diametro, parietatibus tenuibus, breviter et subdense pubescentia. *Bractae* basales 2, basi connatae, ovatae, apice rotundatae, subchartaceae, basi extra leviter puberulae. *Ostiolum* haud prominens, bilabiatum, circiter 1 mm. latum. *Bractae* in receptacula descendentes, superiores ovato-lanceolatae, obtusae, inferiores lineari-lanceolatae, subacutae, glabrae. *Flores* ♂ sessiles; perianthii segmenta 2–3, lanceolata; stamen solitarium, anthera fere sessile obtusa. *Flores* ♀ robuste pedicellati; perianthii segmenta 3–4, marginibus membranaceis; achaenia tenuiter et arcte foveolata. *Receptaculi squamae* oblongo-lanceolatae, acutae, circiter 3 mm. longae.—*F. camptoneura*, Mildbr. in Engl. Bot. Jahrb. vol. xlv. p. 233, partim.

Fernando Po: north side of Pico St. Isabel, *Mildbraed* 6411, 7137.

Cameroons: Neu-Tegel, *Winkler* 167; Niasoso, *Buesgen* 287; Bangwe, *Conrau* 208.

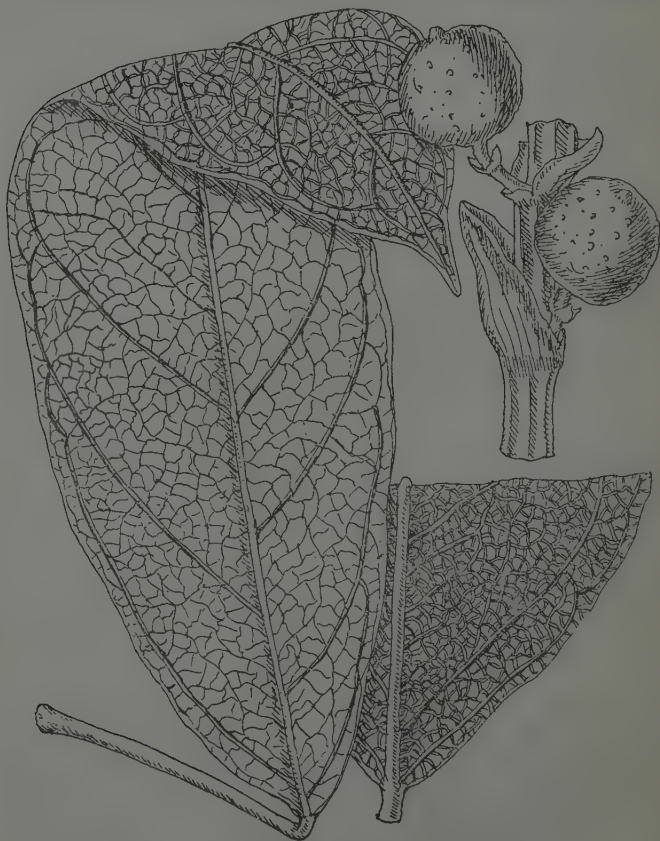
***F. nyanzensis*, Hutchinson;** affinis *F. camptoneuroidei*, Hutchinson, differt foliis abrupte et brevissime acuminatis, receptaculis graciliter pedunculatis.

*Ramuli* juniores costati vel angulares, cortice cinereo tenuiter puberulo obtecti. *Folia* oblanceolata vel oblongo-oblanceolata, brevissime et obtuse acuminata, basi cuneata, 6.5–11.5 cm. longa, 2.5–5 cm. lata, integra, rigide coriacea, utrinque opaca et glabra; costa media supra plana, infra prominens et rotundata, basi circiter 2 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus circiter 5, a costa subangulo  $45^{\circ}$  abeuntes, prope marginem conjuncti, subgraciles, infra prominentes; nervi tertiarum vix evidentes; veni infra tenuiter reticulati, vix elevati; petioli subrobusti, 1.3–2 cm. longi, glabri; stipulae persistentes, lanceolatae, acutae, usque ad 2 cm. longae, membranaceae, longitudinaliter striatae, glabrae. *Receptacula* axillaria, probabiliter geminata, pedunculata, globosa, vix 1 cm. diametro, siccis sparse nigro-maculata, breviter albo-pubescentia; pedunculi 1–1.3 cm. longi, 1.25 mm. crassi, breviter pubescentes. *Bractae* basales 2, basi leviter connatae, late ovatae, apice rotundatae, 2.25 mm. longae et latae, tenuiter chartaceae, glabrae. *Ostiolum* bilabiatum, leviter productum, glabrum, 1 mm. diametro; bractae paucae, omnes in receptacula descendentes. *Flores* juniores tantum visi.

Uganda: Entebbe, near Lake Victoria, *Bagshawe* 690.

**F. namalalensis**, *Hutchinson*; affinis *F. ebolowensi*, *Mildbr.* et *Hutchinson*, sed ramulis glabris, folium venatione infra gracile differt.

*Arbor* parva; ramuli circiter 5 mm. crassi, cortice laeve pallido obtecti. *Folia* oblonga vel oblongo-elliptica, ad basin leviter angustata vel basi rotundata, apice caudato-acuminata, 14–22 cm. longa, 5–8 cm. lata, acumine 1.3–2 cm. longo, integra, rigide coriacea, utrinque glabra, infra venatione pallide stramineo; nervi laterales utrinsecus 5–6, leviter arcuati, a costa sub angulo circiter  $60^{\circ}$  abeuntes, infra valde prominentes, intra marginem conjuncti; petioli 2.5–4 cm. longi, robusti, cortice deciduo brunneo obtecti; stipulae persistentes, lanceolatae vel oblongo-lanceolatae, acutae, basi ramulos semi-circumdantes, 2–2.5 cm. longae, circiter 6 mm. latae, membranaceae, purpurae, glabrae. *Receptacula* axillaria, probabiliter solitaria vel geminata, depresso-globosa, supra bracteas basales longe stipitata, circiter



*Ficus namalalensis*, *Hutchinson*; nat. size; base of leaf  $\times 2$ .



2 cm. diametro, leviter verrucosa, glabra, stipite 5-6 mm. longo fere 2 mm. crasso parce puberulo; pedunculi 4-6 mm. longi, robusti, glabri vel fere glabri. *Bractee basales* probabiliter 2, plus minusve ovato-ellipticae, mox partim deciduae, membranaceae. *Ostiolum* parvum et poriforme, circiter 1 mm. latum. *Flores* ♂ perianthio membranaceo et stamine unico. *Flores* ♀ subsessiles, insectiferi pedicellati, numerosi.

Uganda: growing around large trees in the Namalala forest, *Fyffe* 77, 83.

**F. ebolowensis**, *Mildbr. et Hutchinson*; affinis *F. namalalensi*, *Hutchinson*, quam vidi.

*Frutex* epiphyticus, ramis sarmentosis; ramuli juniores breviter strigilloso-pubescentes, apice circiter 6 mm. diametro, subteretes, internodiis brevibus. *Folia* oblonga vel leviter oblanceolata-oblonga, caudato-acuminata, acumine obtuso 1.3-2 cm. longo, basi leviter cuneata, 10-20 cm. longa, 3-6.5 cm. lata, integra, rigide coriacea, utrinque opaca et glabra, supra pallide viridia, infra nervis pallidis crassis ornata; costa media supra plana, infra prominens, basi circiter 2 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 6-7, a costa sub angulo 45° abeuntes, 3-4 mm. intra marginem prominenter conjuncti; nervi tertiarii vix evidentes, cum venis infra reticulationem pallide flavum formantes; petioli 2-2.5 cm. longi, crassi, 2.5-3 mm. longi, breviter pubescentes; stipulae persistentes, intrapetiolares, geminatae, basi leviter connatae et ramum circumdantes, ovato-lanceolatae, subcutae, 2-2.5 cm. longae, submembranaceae, striatae, pallide brunneae, extra minute puberulae. *Receptacula* viridia, rubro-brunneo-maculata, axillaria, solitaria? sessilia, supra bracteas basales stipitata, globosa, supra basin rotundata, circiter 1.3 cm. diametro, tenuiter puberula; stipes 3 mm. longus, cylindricus, circiter 1.25 mm. diametro. *Bractee basales* 2, ovato-orbiculares, mucronatae, 2.5 mm. longae et latae, membranaceae, extra prope basin leviter puberulae, ceterum glabrae. *Ostiolum* bilabiatum, circiter 0.75 mm. longum; bractee omnes in receptacula descendentes, superiores parvae, inferiores subulato-lanceolatae, hyalinae, glabrae. *Flores* ♂ subsessiles; perianthii segmenta 3, lanceolata, subobtusata, membranacea, glabra; stamen solitarium, filamentum breve, anthera 1 mm. longa obtusa. *Flores* ♀ pedicellati; perianthii segmenta 4-5, lineari-lanceolata, acuta, membranacea; achaenia laevia; stylus non visus.

Cameroons: Ebolowa district; Ekuk, *Mildbraed* 5689.

**F. Rederi**, *Hutchinson*; affinis *F. cyathistipulae*, Warb., sed nervis lateralibus sub angulo acuto ascendentibus, receptaculis glabris differt.

*Ramuli* glabri vel leviter puberuli, sicco angulares, cortice cinereo obtecti. *Folia* obovata vel obovato-elliptica, subobtusae acuminata, basi plus minusve cuneata, 9-12.5 cm. longa, 4-6 cm. lata, integra, chartacea, utrinque opaca et glabra, infra venatione pallide flavo ornata; costa media supra plana, infra prominens, basi 2 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus circiter 5, a costa sub angulo 45° abeuntes, marginem versus conjuncti et graciles; nervi tertiarii pauci et

pergraciles, inter nervos laterales plus minusve flexuosi; veni infra areolas atro-brunneas circumdantes; petioli 1.3–2 cm. longi, glabri; stipulae persistentes, lineari-subulatae ad lanceolatae, acutissimae, 0.8–1.3 cm. longae, rigide chartaceae, leviter puberulae vel fere glabrae. *Receptacula* axillaria, pedunculata, ellipsoideo-obovoidea, stipitata, fere 4 cm. longa et 2.5 cm. diametro, glabra; pedunculi 6–8 mm. longi, sulcati, glabri, fere 2 mm. crassi; stipes circiter 5 mm. longus, robustus. *Bracteae basales* 2, basi connatae, ovato-orbiculares, circiter 4 mm. longae, submembranaceae, glabrae. *Ostiolum* haud prominens, bilabiatum, 1 mm. latum; bracteae omnes in receptacula descendentes, paucae, lineares, ad 6 mm. longae, subcarnosae, glabrae. *Flores* ♂ non visi sed probabiliter stamine unico instructi. *Flores* ♀ robuste pedicellati; perianthii segmenta 4, oblongo-ovata, obtusa, marginibus hyalinis membranaceis; achaenia laevia; stylus subcrassus, breviter bilobus. *Receptaculi paries* circiter 5 mm. crassus; squamae subulato-lanceolatae, acutae, 3 mm. longae, marginibus tenuibus membranaceis.—*F. cyathistipula*, Mildbr. et Burret in Engl. Bot. Jahrb. vol. xlv. p. 234, partim, non Warb.

Cameroons: Buea, *Reder* 395; Ebenda, *Reder* 1503.

The leaves of this species are very similar to those of *F. camp-toneura*, Mildbr., and the receptacles are like those of *F. cyathistipula*, Warb.

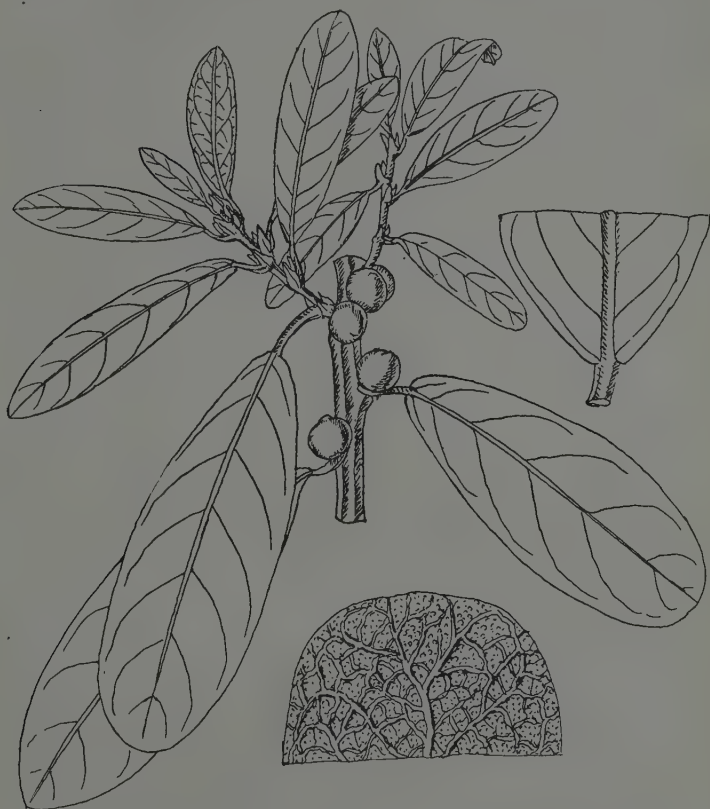
***F. mutantifolia*, Hutchinson;** affinis *F. linguae*, Warb., foliis maturis quam junioribus multo majoribus et crassioribus differt.

*Ramuli* quadrangulares, primum brunneo-tomentelli, demum glabrescentes. *Folia* juniora anguste oblanceolata, apice rotundata, ad basin obtusum leviter angustata, 2.5–4 cm. longa, 0.8–1.3 cm. lata, integra, chartacea, sicco supra fere nigrescentia, infra brunnea et delicate reticulata, nervis lateralibus 9; folia matura rigide coriacea, oblongo-oblanceolata, apice leviter truncata et rotundata, basi obtusa, 4–6.5 cm. longa, 2–2.5 cm. lata, integra, sicco utrinque pallide viridia, supra nitida; costa media supra plana vel leviter immersa, infra subelevata, basi 1.5 mm. lata, ad apicem sensim attenuata circiter 6 mm. infra laminae apicem bifurcata; nervi laterales utrinsecus 9–11, supra leviter immersi, infra paulum prominentes, a costa media sub angulo 45° abeuntes, intra marginem circiter 1.5 mm. distante crenate-conjuncti; nervi tertiarum venique pauci, vix evidentes; petioli 6–8 mm. longi, in foliis junioribus subgraciles, glabri, in foliis maturis circiter 1.5 mm. crassi; stipulae persistentes vel subpersistentes, ovatae, acute acuminatae, circiter 4 mm. longae et 3 mm. latae, membranaceae, juniores pubescentes, mox glabrae vel fere glabrae. *Receptacula* ramulorum apices versus conferta, sessilia, ovoideo-globosa, circiter 5 mm. diametro, minute et molliter pubescentia. *Bracteae basales* 3, late ovatae vel suborbiculares, apice rotundatae, circiter 1.5 mm. longae et latae, membranaceae, extra tenuiter pubescentes. *Ostiolum* haud prominens, bilabiatum; bracteae in receptacula descendentes. duabus mediis quam ceteris multo majoribus lineari-oblongis obtusis 2.25 mm. longis membranaceis, ceteris subulatis vel subulato-lanceolatis acutis membranaceis. *Flores* ♂ non visi. *Flores* ♀ numerosi, subsessiles; perianthium tenuissimum, stylum

includens, stigmatē satis magno. *Receptaculi squamae* paucae, subulatae, acutissimae, 1.5 mm. longae, membranaceae.

Angola: Malange district, *Gossweiler* 1004.

The difference between the older and younger leaves is very marked and appears to be characteristic of the species.



*Ficus mutantifolia*, *Hutchinson*; nat. size; portions of leaf  $\times 2$ .

***F. anomani***, *Hutchinson*: affinis *F. kamerunensi*, Warb. ex Mildbr. et Burret, sed foliis haud acuminatis nervis lateralibus paucioribus (6-7), receptaculis majoribus differt.

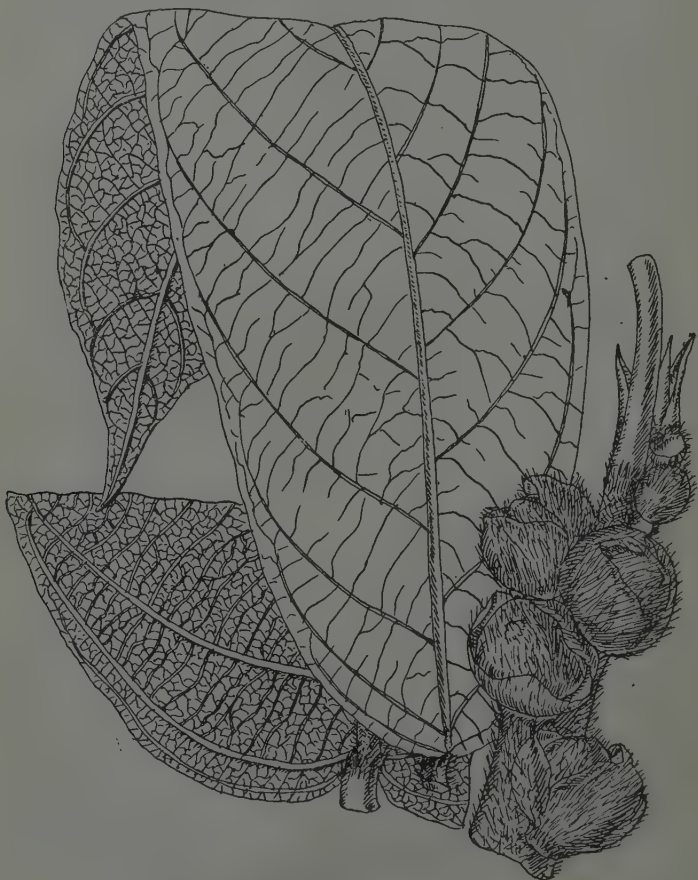
*Ramuli* satis robusti, siccō purpurascētes, glabri. *Folia* oblonga vel oblongo-oblanccolata utrinque obtusa vel ad basin paulum angustata, 5-11.5 cm. longa, 2.5-4 cm. lata, integra, tenuiter coriacea, utrinque glabra et opaca; costa media supra plana, infra prominens et straminea, basi 2 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 6-7, a costa sub angulo  $45^\circ$  abeuntes, gracillimi, supra indistincti, infra prominentes, prope marginem conjuncti; nervi tertiarii venique vix evidentes; petioli 1.3-3 cm. longi, robusti, supra late sulcati, 2-2.5 mm. crassi, glabri; stipulae persistentes, late ovatae,



acutae, circiter 8 mm. longae, extra glabrae. *Receptacula* axillaria, sessilia, ovoideo-globosa, circiter 1 cm. diametro, tenuiter pubescentia vel fere glabra, ostiolo magno umbonata. *Bractee basales* 2, parvae, ad receptaculum arcte appressae, membranaceae, glabrae. *Ostiolum* poriforme; bractee in receptacula descendentes, glabrae. *Flores* ♂ breviter pedicellati; perianthii segmenta obovata, membranacea, glabra; stamen solitarium; anthera lata. *Flores* ♀ sessiles; stylus achaenio aequilongus, gracilis. *Flores insectiferi* pedicellati.

Sierra Leone: near Kukuna, Scarcies River, *Scott Elliot* 4693. Ivory Coast: Lower Cavally River, at Mt. Nienokué, *Chevalier* 19,447; 19,473. Gold Coast: Dimkwa district; *Deymase*, *Chipp* 151; *Schwih* and *Wam* districts, *Armitage*. Cameroons: near Mundame, *Buesgen* 140.

**F. Dawei**, *Hutchinson*; affinis *F. eriobotryoidei*, Kth. et Beche., foliis ad medium latissimis ellipticis vel oblongo-ellipticis basi rotundatis vel emarginatis differt.



**Ficus Dawei**, *Hutchinson*; nat. size; base of leaf  $\times 2$ .

*Arbor* usque ad 15 m. alta; ramuli juniores apice foliati, robustissimi, villosi. *Folia* magna, elongato-elliptica vel anguste oblongo-elliptica, breviter et obtuse acuminata, acumine 0.8-1.3 cm. longo, basi rotundata et emarginata, 20-30 cm. longa, 5.5-15 cm. lata, integra, chartacea vel tenuiter coriacea, supra glabra reticulata et opaca, infra praecipue in costa et nervis lateralibus pilosa; costa supra plana vel leviter impressa, infra valde prominens, basi 4 mm. lata, sicco arcte et longitudinaliter costata, ad apicem sensim attenuata; nervi laterales utrinsecus 12-14, a costa sub angulo lato abeuntes, leviter arcuati, prope marginem conjuncti, utrinque distincti, infra prominentes; nervi tertiarii sublaxi, flexuosi; venation utrinque satis arctus et conspicuus; petioli 2.5-7.5 cm. longi, compressi, circiter 5 mm. lati, juniores pilis reflexis villosi, demum puberuli; stipulae caducae, ovatae, longe et acute acuminatae, circiter 2 cm. longae, submembranaceae, extra basin versus pubescentes. *Receptacula* ramulorum apices versus conferta, sessilia, depresso-globosa, 1.3-2 cm. diametro, tenuiter longe pilosa. *Bractee basales* magnae, receptaculos juniores omnino involventes, extra longe pilosae. *Ostiolum* parvum, poriforme; bractee omnes in receptacula descendentes, glabrae. *Flores* ♂ breviter pedicellati; stamen solitarium. *Flores* ♀ sessiles; stylus gracilis. *Flores insectiferi* pedicellati.

Uganda: Buddu, 1100 m., *Dawe* 288.

**F. clarencensis**, *Mildbr. et Hutchinson*; affinis *F. eriobotryoides*, Kth. et Bouche, differt receptaculis glabris nec tomentosus.

*Arbor* magna; ramuli robusti, infra apicem circiter 1.3 cm. diametro, parce pilosi. *Folia* oblongo-elliptica, breviter et obtuse acuminata, basi breviter cordata, 15-20 cm. longa, 7.5-10 cm. lata, integra, tenuiter coriacea, supra glabra, infra solum in costa media pubescentia; costa media supra plana, infra valde prominens, basi circiter 4 mm. lata, ad apicem sensim attenuata; nervi laterales utrinsecus 10-12, a costa sub angulo 60°-70° abeuntes, supra leviter impressi, infra prominentes, prope marginem conjuncti; nervi tertiarii inter nervos laterales conjuncti et flexuosi, infra distincti, graciles; veni vix evidentes; petioli 2-5 cm. longi, 4 mm. crassi, cortice deciduo; stipulae caducae. *Receptacula* in calyptra subcoriaceo pubescente inclusa, axillaria, sessilia, depresso-globosa, 2-2.5 cm. diametro, minute et parcissime pubescentia. *Bractee basales* magnae, receptaculos involventes, extra dense villosae. *Ostiolum* leviter elevatum, bilabiatum; bractee omnes in receptacula descendentes, glabrae. *Flores* ♂ breviter pedicellati; perianthii segmenta lanceolata, glabra; stamen solitarium. *Flores* ♀ sessiles; stylus brevis. *Flores insectiferi* pedicellati.

Fernando Po: Clarence Peak, to the north of Pico Santa Isabel, 1100-1400 m., *Mildbraed* 6408.

Allied to *F. eriobotryoides*, Kth. & Beche., with quite glabrous receptacles similarly enclosed in large calyptra until nearly ripe, and not tomentose as in that species.

**F. kitubalu**, *Hutchinson*; species foliis costa media utrinque pubescentia distincta.

*Arbor* usque ad 8.5 cm. alta vel ultra, habitu frequenter extensa; ramuli juniores apicem versus foliati, satis robusti, sulcati, leviter pubescentes. *Folia* oblonga vel elliptica, utrinque rotundata vel basi leviter angustata, 7.5–10 cm. longa, 4–5 cm. lata, integra, rigide chartacea, supra in costa pubescentia, infra molliter pubescentia; costa utrinque aequaliter prominens, basi circiter 2.5 mm. lata, ad laminae apicem sensim attenuata sed leviter bifurcata; nervi laterales utrinsecus circiter 9, a costa sub angulo lato divergentes, 1–2 mm. intra marginem conjuncti, infra leviter prominentes; nervi tertiarum principes infra quam laterales vix minus prominentes, divergentes, cum venis venationem laxum formantes; petioli 2–2.5 cm. longi, leviter compressi, supra sulcati, breviter pubescentes; stipulae caducae, ovato-lanceolatae, acute et longe acuminatae, 1.3–2 cm. longae, 6–8 mm. latae, squamatae, glabrae, sicco nigrae et opacae. *Receptacula* sessilia, axillaria, geminata, bracteis basalibus magnis fere involventia, globosa, circiter 8 mm. diametro, dense pubescentia vel fere tomentosa. *Bractee basales* in alabastro receptacula involventes, membranaceae, extra puberulae, intra plus minusve villosae. *Ostiolum* parvum, glabrum, poriforme; bractee omnes in receptacula descendentes, lineari-lanceolatae, glabrae. *Flores* ♂ subsessiles; stamen solitarium. *Flores* ♀ subsessiles, juniores tantum visi.

Uganda: Buddu, 1200 m., *Dawe* 286.

Mr. Dawe states that this tree, which is called "Kitubalu" by the natives, yields an inferior bark-cloth; it is planted only when other varieties are unobtainable.

**F. mallotoides**, *Mildbr. et Hutchinson*; affinis *F. ovatae*, Vahl, foliis ovato-orbicularibus vix acuminatis differt.

*Planta* epiphytica, magna; ramuli satis robusti, arcte longitudinaliter sulcati, tenuiter pubescentes. *Folia* late ovata, basi cordata, apice leviter obtusissime acuminata, 14–16.5 cm. longa, 9–12.5 cm. lata, integra, chartacea, utrinque opaca et glabra; costa media supra plana, infra valde prominentia, basi 2 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 10–12, a costa sub angulo 50°–70° abeuntes, inferioribus in latere inferiore ramosis, omnes utrinque distincti, infra subgraciles sed prominentes, intra marginem conjuncti et ramosi; nervi tertiarum divergentes, subflexuosi; veni satis laxi, infra distincti; petioli 4–7.5 cm. longi, circiter 2 mm. crassi, glabri; stipulae subsistentes, lanceolatae, acute acuminatae, 2 cm. longae, circiter 8 mm. latae, tenuiter papyraceae, extra parce puberulae, intra subtomentellae. *Receptacula* axillaria, sessilia, viridia et rubro-brunneo-maculata, depresso-globosa, 2–2.5 cm. diametro, extra minute subappresse pubescentia, sicco flavescenti-brunnea et verrucosa. *Bractee basales* mox deciduae. *Ostiolum* bilabiatum, haud prominens; bractee omnes in receptacula descendentes, duabus prope ostiolum quam ceteris multo majoribus, rigidae, crassae, oblongae, apice truncatae 6 mm. longae,

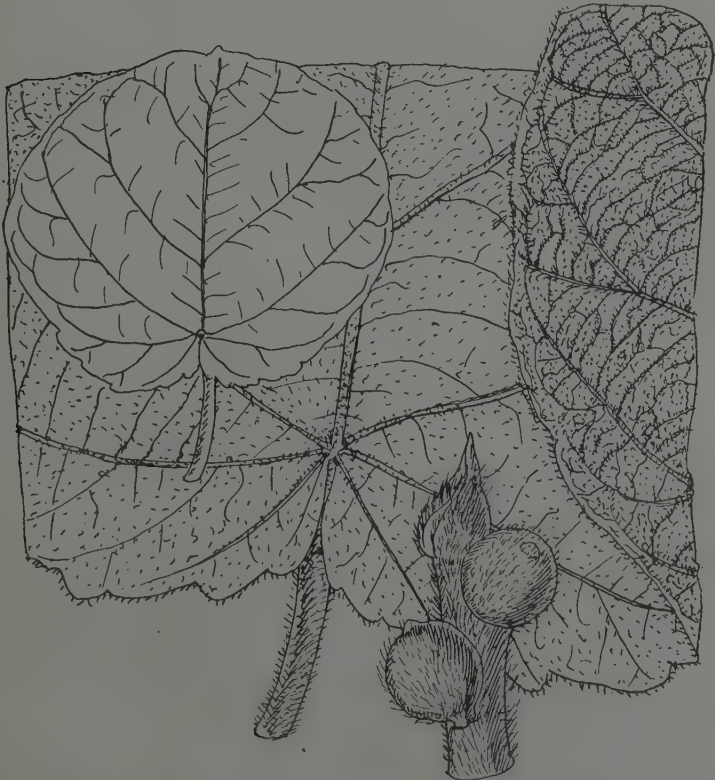


glabrae, ceteris oblongis vel ovato-oblongis marginibus membranaceis. *Flores* ♂ sessiles; perianthii segmenta 3, inaequalia, oblongo-elliptica, membranacea, glabra; stamen solitarium; filamentum apicem versus incrassatum; anthera oblonga, 1 mm. longa. *Florum* ♀ *perianthii segmenta* ♂ similia; stylus gracilis, in stigmatē sensim complanatus.

Cameroons: Molundu district; between Lokomo, Bumba and Bange, *Mildbraed* 4379.

**F. Wakefieldii**, *Hutchinson*; affinis *F. Sonderi*, *Miq.*, sed foliis plerumque multo majoribus membranaceis vel chartaceis costa media infra laminae apicem furcata differt.

*Arbor* circiter 10 m. alta; cortex nitide brunneus; ramuli juniores perrobusti, in sicco pilis luteis dense et crasse villosi. *Folia* magna, orbicularia, basi cordata et prominenter trinervia, 10–20 cm. diametro, basi undulato-crenata, membranacea vel chartacea, utrinque vel supra solum in costis pubescentia, infra in costis pilosa; costa media supra plana vel paulo impressa, infra



*Ficus Wakefieldii*, *Hutchinson*; leaf  $\times \frac{1}{4}$ ; base of leaf and portion of branchlet with figs. nat. size.

valde prominens, frequenter plus minusve flexuosa, infra apicem laminae furcata; nervi basales inter se et marginem nervulis lateralibus 5 prominentibus instructi; nervi laterales utrinque 3-4, e costa media angulo  $45^{\circ}$  divergentes, infra valde prominentes, 2-4 cm. intra marginem conspicue furcati, tertiariis flexuosis numerosis infra conspicuis, venis infra arete reticulatis; petiolus robustus, 5-7.5 cm. longus, circiter 4 mm. crassus, pilosus; stipulae caducae, oblongo-ovatae, obtusae, 4-5 cm. longae, 2 cm. latae, membranaceae, in sicco pallide brunneae, parte nuda exteriore piloso-pubescentes. *Receptacula* axillaria, sessilia, geminata, circiter 1 cm. diametro, pilis debilibus pilosa. *Bracteae* basales parvae, densissime villosae. *Ostiolum* leviter rostratum, poriforme, bracteis ovato-lanceolatis glabris in receptacula recte descendantibus. *Flores* ♂ subsessiles; stamen unicum; anthera ellipsoidea, obtusa.—*F. vasta*, Mildbr. et Burret in Engl. Bot. Jahrb. vol. xlv. p. 216, partim, non Forsk.

German East Africa: Muansa district; Sonjo Sale, *Merker* 430; neighbourhood of Sale Rorehoto, *Uhlig* 254; Victoria Nyanza; Ukerewe, *Conrads* 405; East Tropical Africa; without precise locality, *Wakefield* 34.

***F. glumosoides*, Hutchinson;** a *F. glumosa*, Del., foliis orbicularibus recedit.

*Arbor* ad 6 m. alta; ramuli satis graciles, juniores villosi. *Folia* orbicularia, basi rotundata vel leviter cordata, 5-7.5 cm. diametro, integra, coriacea, supra in costa et nervis lateralibus leviter, infra dense et molliter pubescentia, basi prominenter 5-nervia; nervi laterales ceteri utrinsecus 4, a costa media sub angulo  $45^{\circ}$  abeuntes, a margine circiter 1.3 cm. distante bifurcati, graciles, infra prominentes; veni infra graciliter reticulati; petioli 2.5-3.8 cm. longi, 2 mm. crassi, tenuiter pilosi; stipulae caducae, non visae. *Receptacula* axillaria, sessilia, ceterum ut in *F. glumosae*, Del.

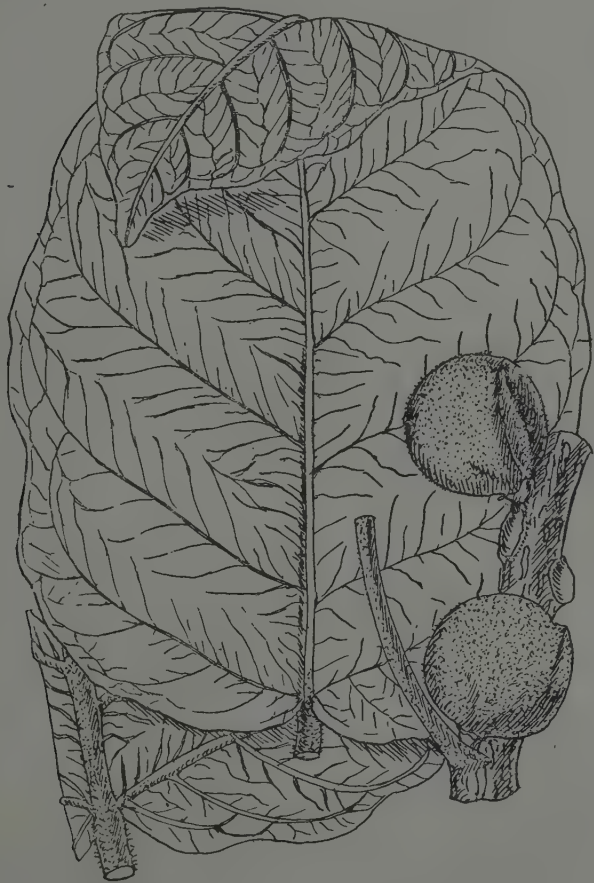
Angola: near native villages in the interior of Noro Redondo, *Gossweiler* 4450.

***F. asymmetrica*, Hutchinson;** species foliis magnis infra solum in costa et nervis lateralibus molliter puberulis, receptaculis uno latere profunde canaliculatis asymmetricis distincta.

*Arbor* magna circiter 22 m. alta; truncus laevis; rami robustissimi, horizontales; ramuli juniores robusti, breviter et molliter puberuli. *Folia* ovata vel ovato-elliptica, brevissime et obtuse acuminata, basi leviter cordata, 12.5-17.5 cm. longa, 7-10 cm. lata, integra, rigide chartacea vel subcoriacea, supra opaca et glabra, infra solum in costa et nervis lateralibus molliter puberula; costa media infra prominens, basi circiter 2.5 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 10-11, a costa sub angulo  $50^{\circ}$ - $80^{\circ}$  abeuntes, infra prominentes, subgraciles, prope marginem conjuncti et ramosi; nervi tertiarii graciles, inter nervos laterales reticulationem delicatulum formantes; veni infra delicate reticulati; petioli 2.5-4.5 cm. longi, longitudinaliter sulcati, circiter 3 mm. crassi, molliter puberuli; stipulae caducae. *Receptacula* axillaria, solitaria, sessilia, subglobosa, uno latere profunde fissura, molliter tomentella, circiter

2 cm. diametro. *Bractee basales* parvae et coricaceae, probabiliter geminatae. *Ostiolum* inconspicuum; bractee in receptacula descendentes, subulato-lanceolatae, glabrae. *Flores* ♂ breviter pedicellati, perianthii segmentis antheram solitariam oblongam includentibus; filamentum breve, connectivo dorso leviter carinato. *Flores* ♀ numerosi, stylis longis gracilibus et stigmatibus cohaerentibus.

Angola: Cabinda, common tree, *Gossweiler* 122.



*Ficus asymmetrica*, *Hutchinson*; nat. size; base of leaf  $\times 2$ .

**F. annobonensis**, *Mildbr. et Hutchinson*; affinis *F. Lujae*, *De Wild.*, foliis ovato-ellipticis vel ovatis infra medium latioribus differt.

*Frutex*; rami teretes, fere glabri; ramuli juniores tenuiter puberuli. *Folia* ovato-elliptica vel oblongo-elliptica, breviter et obtusissime acuminata, basi rotundata vel subcordata, 6.5–10 cm.



longa, 3-4.5 cm. lata, integra, chartacea, supra tenuiter verrucosa, infra glabra; costa media supra leviter elevata, infra prominens, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 6-7, a costa sub angulo 45° abeuntes, arcuati, intra marginem conjuncti, utrinque paulum prominentes; veni infra satis arcti et prominentes; petioli 1.3-2 cm. longi, graciles, glabri; stipulae caducae, lineari-lanceolatae, acute acuminatae, 1 cm. longae, glabrae, minute ciliatae. *Receptacula* axillaria, geminata, sessilia, globosa, 8 mm. diametro, glabra. *Bractee basales* 2, basi connatae, ovatae, obtusae, mox in partibus duobus inaequalibus fissae, 4 mm. longae, coriaceae, extra minute puberulae. *Ostiolum* paulum productum, bilabiatum; bractee in receptacula descendentes, duabus oblongis obtusis quam ceteris longioribus crassioribusque. *Flores* ♂ subsessiles; perianthii segmenta 3-4, oblongo-elliptica, membranacea, glabra; stamen solitarium. *Flores* ♀ subsessiles; perianthii segmenta quam in flores ♂; achaenia ellipsoidea, glabra; stylus achaenio aequilongus, gracilis, stigmatate lato complanato.

Annobon Island: on dry hills in the north, above the Palé village, *Mildbraed* 6639.

**F. leonensis**, *Hutchinson*; affinis *F. aganophila*, *Hutchinson*, sed foliis minoribus basi distincte cordatis apice obtuse acuminatis.

*Frutex*; ramuli sicco brunnescentes, conspicue lenticellati, cortice tenue deciduo glabro obtekti. *Folia* obovata vel suborbicularia, basi leviter cordata, apice obtuse acuminata, 5-12.5 cm. longa, 3-6.5 cm. lata, integra, rigide subcoriacea, utrinque opaca et glabra, sicco supra nigrescentia, infra brunnescentia, infra arcte reticulata; costa media supra plana, infra prominens, basi circiter 1.5 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 9-12, a costa sub angulo lato abeuntes, inferiores oppositi vel suboppositi, conjuncti, infra leviter prominentes; nervi tertiarii infra distincti, cum lateralibus subparalleli; petioli 1.3-2.5 cm. longi, glabri, cortice deciduo obtekti; stipulae caducae, lineari-lanceolatae, 3 mm. longae, glabrae. *Receptacula* axillaria, in foliorum superiorum axillis solitaria, sessilia, globosa, circiter 7 mm. diametro, glabra. *Bractee basales* 3, ovatae, apice rotundatae, circiter 1.5 mm. longae, coriaceae, glabrae. *Ostiolum* bilabiatum, leviter prominens; bractee in receptacula descendentes, subulatae vel subulato-lineares, acutae, 1-1.5 mm. longae, carnosulae, glabrae. *Flores* ♂ pauci, subsessiles; perianthii segmenta elliptico-oblongata, glabra; stamen solitarium; filamentum 1 mm. longum; anthera post anthesin horizontaliter patula. *Flores* ♀ sessiles; perianthii segmenta triangularia, acuta; achaenia subglobosa, laevia; stylus brevis. *Flores insectiferi* pedicellati.

Sierra Leone: near Bathurst, 160 m., *H. H. Johnston* 88.

French Guinea: neighbourhood of Kindur, *Pobèguin* 1282.

**F. aganophila**, *Hutchinson*; affinis *F. leonensi*, *Hutchinson*, quam vidi.

*Arbor* 15 m. alta; rami et ramuli juniores sicco sulcati, purpurascetes, glabri. *Folia* elliptica vel oblongo-elliptica, basi

rotundata vel subtruncata, apice breviter et subcaudato-acuminata, 9–18 cm. longa, 4·5–9 cm. lata, integra, coriacea, utrinque glabra, supra leviter nitida; costa media supra paulum immersa, infra valde prominens, basi circiter 3 mm. lata, ad acuminis apicem sensim attenuata; nervi laterales utrinsecus 10–12, a costa sub angulo lato divergentes, paulum curvati, 2–4 mm. intra marginem conjuncti; nervi tertiarum cum lateralibus paralleli, prominentes; veni graciles et inconspicui; petioli 1·3–2·5 cm. longi, ad 4 mm. crassi, sicco nigrescentes, glabri; stipulae caducae. *Receptacula* juniora tantum visa, axillaria, probabiliter sessilia.

Nigeria: Grado Lake, *Barter* 3238.

Spanish Guinea: Uelleburg, *Tessmann* 434.

**F. arcuato-nervata**, *De Wild.* MSS.; species affinis *F. oreodryadum*, Mildbr., foliis longe caudato-acuminatis, receptaculis minoribus distincta.

*Frutex* epiphyticus; ramuli parce angulati, glabri. *Folia* oblanceolata, sensim acuminata, acumine 1·3–2 cm. longo, apice obtusa, ad basin angustata, 9–13 cm. longa, 3–4 cm. lata, integra, chartacea, supra tenuiter verrucosa, infra glabra; costa media supra plana, infra prominens, basi circiter 2 mm. lata, ad laminae apicem sensim attenuata et gracilis; nervi laterales utrinsecus circiter 5, a costa sub angulo 45° abeuntes, arcuati, intra marginem conjuncti, infra prominentes et pallidi; nervi tertiarum primum cum lateralibus paralleli, gracillimi, demum ramosi, infra distincti; petioli 6–8 mm. longi, cortice glabro tenue transverse fisso deciduo obtekti; stipulae mox caducae. *Receptacula* axillaria, geminata vel interdum solitaria, sessilia, obovoideo-globosa, 6–8 mm. diametro, glabra. *Bractee basales* 2, plus minusve semiorbiculares, parvae, marginibus membranaceis fissis, glabrae. *Ostiolum* parvum et inconspicuum, bilabiatum; bractee omnes in receptacula descendentes, lineari-lanceolatae, subacutae, glabrae. *Flores* ♂ sessiles, anthera minima solitaria. *Flores* ♀ sessiles, perianthii segmentis 3 obtusis; achaenia late ellipsoidea; stylus gracilis, stigmatibus paulum incrassato. *F. camptoneura*, var. *angustifolia*, Mildbr. in Engl. Bot. Jahrb. xlv. 234; De Wild. in Bull. Soc. Bot. Belg. lii. 202.

Belgian Congo: Ituri district; Kasanga, *Mildbr.* 3107; Lupolo, *Seret* 984; Eala, *Pynaert* 1327; 1504.

**F. brachypoda**, *Hutchinson*; affinis *F. ovatae*, Vahl, sed receptaculis pedunculatis, bracteis basalibus parvis differt.

*Arbor* divaricata 12–16 m. alta; ramuli breviter puberuli, internodiis circiter 3 cm. longis. *Folia* oblonga vel oblongo-elliptica, caudato-acuminata, basi rotundata, 15–22 cm. longa, 7·5–10 cm. lata, integra, rigide chartacea vel subcoriacea, basi 3-nervia, supra glabra, infra praecipue in costa et nervis lateralibus molliter pubescentia; costa media basi circiter 2·5 mm. lata, ad laminae apicem sensim attenuata, supra plana, infra valde prominens et rotundata; nervi laterales utrinsecus 10–11, suboppositi, a costa sub angulo 45° abeuntes, intra marginem 1·3 cm. bifurcati, supra impressi, infra prominentes; veni supra leviter impressi, infra distincti et arcti; petioli 6–7·5 cm. longi, circiter 2·5 mm.

crassi, longitudinaliter sulcati, molliter pubescentes, sicco nigrescentes; stipulae caducae, non visae. *Receptacula* axillaria, solitaria vel geminata, breviter pedunculata, oblongo-ellipsoidea, basi leviter contracta, circiter 1.5 cm. longa et 1.3 cm. diametro, puberula; pedunculi 6 mm. longi, robustissimi, circiter 4 mm. crassi, sulcati, fere tomentosi. *Bractee basales* basi in cupulo leviter lobato vel undulato connatae, coriaceae, extra pubescentes, intra glabrae et nitidae. *Ostiolum* vix evidens, poriforme; bractee in receptacula descendentes, lineari-lanceolatae. glabrae. *Flores* ♂ anthera solitaria.

Uganda: Buddu, 1300 m., *Dawe* 290.

The vernacular name in Buddu is "Kokauwe."

**F. Ledermannii**, *Hutchinson*; affinis *F. mittuensi*, Warb., et *F. disciferae*, Warb., ab illa ramulis junioribus et foliis infra molliter tomentosis, ab hac indumento, ostiolo prominente et involucri ambitu differt.

*Arbor* magna 14-16 m. alta, corona lata; ramuli juniores fructiferi prope apicem circiter 6 mm. diametro, molliter tomentosi. *Folia* supra cinereo-viridia, infra cinereo-alba (*Ledermannii*), ovato-orbicularia, leviter et obtuse acuminata, basi cordata et sinu lato, 6.5-11.5 cm. longa, 5-11 cm. lata, integra, coriacea, supra opaca glabra et delicate reticulata, infra breviter et molliter pubescentia vel fere tomentella; costa media supra plana, infra prominens, basi circiter 1.5 mm. lata, ad laminae apicem gracillima et sensim attenuata; nervi laterales utrinsecus circiter 8, inferiores recurvati, ceteri a costa sub angulo 45° abeuntes, intra marginem bifurcati, infra prominentes; nervi tertiarum flexuosi, graciles, distincti; petioli 3-6.5 cm. longi, breviter et molliter pubescentes, longitudinaliter sulcati; stipulae caducae, ovato-lanceolatae, acute acuminatae, 2 cm. longae, extra albo-sericeo-pubescentes, intra glabrae et rubescentes. *Receptacula* axillaria, geminata, pedunculata, obovoideo-ellipsoidea, circiter 1.3 cm. longa et diametro, maculata, glabra, sicco laevia; pedunculi 6-8 mm. longi, teretes, circiter 1 mm. crassi, tenuiter et molliter pubescentes. *Bractee basales* mox caducae, basi in annulo parvo pubescente persistente connatae. *Ostiolum* prominens, parvum, bilabiatum; bractee paucae, in receptacula descendentes, glabrae. *Flores* ♂ brevissime pedicellati; perianthii segmenta leviter membranacea, glabra; anthera solitaria, obtusa. *Flores* ♀ sessiles; achaenia subglobosa, laevia; stylus lateraliter insertus, gracilis, achaenio paulum brevior. *Flores insectiferi* pedicellati.—*F. abutilifolia*, Mildbr. et Burret in Engl. Bot. Jahrb. xlv. 214, partim, non Miq.

Cameroons: Lagdo mts., *Ledermann* 4378.

**F. budduensis**, *Hutchinson*; valde affinis *F. vastae*, Forsk., foliis infra dense molliter tomentosis, receptaculis et pedunculis majoribus differt.

*Arbor* 6-8 m. alta; ramuli juniores breviter tomentosi, demum parce pubescentes. *Folia* ovata vel ovato-elliptica, basi leviter cordata, apice rotundata, circiter 15 cm. longa et 11 cm. lata,



integra, rigide coriacea, supra in costa puberula, ceterum glabra, infra molliter tomentosa; costa supra plana, infra prominens, basi circiter 2.5 mm. lata, ad apicem sensim attenuata; nervi basales 5, laterales utrinsecus circiter 7, inferiores oppositi, superiores subalternati, a costa sub angulo  $45^{\circ}$  abeuntes, 1.3–2 cm. intra marginem bifurcati, supra distinctissimi, infra prominentes; nervi tertiarii inconspicui, laxi, flexuosi; petioli 3–4.5 cm. longi, molliter et subdense pubescentes; stipulae caducae, non visae. *Receptacula* axillaria, 2–3-nata, pedunculata, globosa, circiter 2 cm. diametro, laevia, tenuiter puberula; pedunculi 9 mm. longi, robusti, tomentelli. *Bracteae basales* mox deciduae, basi connatae, extra tomentellae. *Ostiolum* bilabiatum, sicco hians, leviter productum, circiter 2 mm. latum; bracteae numerosae, omnes in receptacula descendentes, subaequales, lineari-subulatae, acutae, 2.5 mm. longae, submembranaceae, glabrae. *Flores* ♂ parvi, subsessiles; perianthium membranaceum; stamen solitarium; filamentum usque ad 1.5 mm. longum; anthera subobtusula, 0.75 mm. longa. *Flores* ♀ subsessiles; perianthii segmenta subulato-lanceolata, acute acuminata, membranacea, glabra; achaenia oblonga, 1.5 mm. longa, laevia; stylus achaenio fere aequilongus, stigmata crasso oblongo-lineare.

Uganda: Buddu, 1200 m., *Dawe* 234.

**F. zambesiaca**, *Hutchinson*; affinis *F. platyphyllae* Del., sed foliis supra pubescentibus differt.

*Arbor* 20–25 m. alta; truncus 1.5 m. supra basin circiter 2.5 m. diametro; ramuli robusti, internodiis brevibus, juniores molliter tomentosi. *Folia* oblonga vel oblongo-elliptica, basi breviter cordata, apice obtusa, 7.5–20 cm. longa, 4–9 cm. lata, integra, rigide chartacea, utrinque praecipue in costa et nervis lateralibus pubescentia; costa media supra leviter immersa, infra prominens et pilosa, basi 2.5–4 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 8–11, a costa sub angulo  $45^{\circ}$  abeuntes, utrinque distincti, infra prominentes, prope marginem conjuncti; nervi tertiarii graciles, multo ramosi, laxi, infra prominentes; veni infra inconspicui et tenuiter reticulati; petioli 2–5 cm. longi, pilosi; stipulae caducae, parvae, glabrae vel fere glabrae. *Receptacula* ramulorum juniorum bases versus axillaria, pedunculata, obovoideo-globosa, 2–2.5 cm. diametro, tomentosa; pedunculi 1.3–2.5 cm. longi, dense pubescentes. *Bracteae basales* deciduae, basi in annulo irregulare unilaterale persistente connatae. *Ostiolum* leviter productum, bilabiatum, glabrum, bracteis omnibus in receptacula descendentibus. *Flores* perfecti non visi.

Nyasaland: Shiré Valley at Katunga, Scott. Portuguese East Africa: opposite Senna, on the Zambesi, *Kirk*; Shubanga, *Kirk* 6.

**F. tettensis**, *Hutchinson*; species foliis parvis subreniformibus pubescentibus distinctissima.

*Ramuli* juniores divaricati, dense tomentosi, internodiis brevissimis. *Folia* subreniformia vel transverse oblongo-elliptica, basi cordata, 2.5–4 cm. longa, 2.5–5.5 cm. lata, integra vel marginibus undulato-crenatis, rigide coriacea, utrinque molliter tomentosa,

basi prominenter 5-nervia; nervi laterales utrinsecus circiter 3, a costa sub angulo  $45^{\circ}$ – $60^{\circ}$  abeuntes, utrinque distincti, infra prominentes, intra marginem bifurcati; veni sub indumentum graciliter reticulati; petioli 1.3–2 cm. longi, teretes, 1.5–2 mm. crassi, dense pubescentes; stipulae caducae, late ovatae, 6 mm. longae, exteriores albo-pilosae. Receptacula in situ non visa sed probabiliter axillaria, pedunculata, leviter depresso-globosa, fere 1.5 cm. diametro, pilis albescentibus dense et molliter tomentosa; pedunculi 0.6–1 cm. longi, circiter 1.5 mm. crassi, dense albo-pubescentes. *Bracteae basales* deciduae, marginem versus membranaceae, basi connatae et persistentes ad receptaculum appressae. *Ostiolum* parvum et inconspicuum; bracteae paucae, omnibus in receptacula descendentes. *Flores* ♂ breviter pedicellati; perianthii segmenta ovato-lanceolata, subacuta, glabra. *Stamen* solitarium; filamentum breve et robustum; anthera ovoidea. *Flores* ♀ subsessiles; achaenia ovoidea, stylo gracile et stigmate magno. *Flores insectiferi* pedicellati.

Portuguese East Africa: Tette, Kirk.

**F. pseudo-mangifera**, Hutchinson; valde affinis *F. mangiferoidei*, Hutchinson, sed pedunculis multo brevioribus tomentosis differt.

*Arbor* magna, corona fere globosa; ramuli juniores crasse sulcati vel angulares, molliter puberuli. *Folia* oblonga vel oblongo-elliptica, breviter et subacutè acuminata, basi obtusa vel leviter rotundata, 7.5–15 cm. longa, 2.5–5 cm. lata, integra, coriacea, glabra; costa media supra plana, infra prominens, basi circiter 2 mm. lata, ad laminae apicem sensim attenuata; nervi laterales utrinsecus 8–12, a costa sub angulo  $45^{\circ}$  abeuntes, leviter arcuati, prope marginem conjuncti, utrinque distincti, infra prominentes; nervi tertiarii quam laterales vix minus prominentes et eis paralleli; veni infra subarcti et distincti; petioli 1.3–2.5 cm. longi, circiter 2.5 mm. crassi, glabri; stipulae caducae ovato-lanceolatae, acuminatae, 6 mm. longae, extra appresse villosae. *Receptacula* axillaria, solitaria, pedunculata, subglobosa, circiter 7 mm. diametro, glabra; pedunculi robusti, 3 mm. longi, tomentosi. *Bracteae basales* 2, rotundatae, membranaceae, glabrae. *Ostiolum* bilabiatum, prominens; bracteae omnes in receptacula descendentes; duae quam ceterae majores et carnosiores, lineari-lanceolatae, obtusae, 3 mm. longae, ceteris subulato-lanceolatis glabris. *Flores* ♂ non visi, sed probabiliter antheram unicam involventes. *Flores* ♀ sessiles, stylis connatis. *Flores insectiferi* pedicellati.—*F. ottoniaefolia*, Mildbr. et Burret in Engl. Jahrb. xlv. 232, excl. Vogel 176, non Miq.

Liberia: Gola, Bunting 13; Mano River, below Ji, Bunting. Belgian Congo: west shore of Albert Edward Nyanza, Mildbraed 1967. German East Africa: Wau Island, Kiwu Lake, Mildbraed 1145.

**F. mangiferoides**, Hutchinson; affinis *F. Barteri*, Sprague, foliis basi rotundatis vel leviter cordatis, receptaculis maturis minoribus, pedunculis gracilibus longioribus differt.

*Ramuli* satis robusti, angulares, sicco lenticellis nigrescentibus notati, juniores leviter pubescentes, demum glabri. *Folia* oblonga vel oblongo-lanceolata, sensim et subobtusae acuminata, basi rotundata vel leviter cordata, 14–30 cm. longa, 4–8.5 cm. lata, integra, coriacea, utrinque opaca et glabra vel supra leviter nitida; costa media supra plana, infra prominens, basi 2.5 mm. lata, ad laminae apicem sensim attenuata; nervi laterales numerosi, utrinsecus 15–20, a costa sub angulo fere 90° abeuntes, graciles, utrinque distincti, intra marginem circiter 3 mm. conjuncti; nervi tertiarum quam laterales leviter minus prominentes et eis paralleli, utrinque distincti; veni infra arcti; petioli breves, 2–2.5 cm. longi, 3–4 mm. crassi, verruculosi, glabri; stipulae caducae, lanceolatae, acuminatae, 2 cm. longae, coriaceae, glabrae vel fere glabrae. *Receptacula* axillaria, pedunculata, depresso-globosa, circiter 7 mm. diametro, sicco verruculosa et parce pubescentia; pedunculi 8 mm. longi, graciles, glabri. *Bractae basales* caducae, basi persistentes, extra leviter pubescentes. *Ostiolum* minutum, poriforme; bracteae in receptacula descendentes, lineari-lanceolatae, glabrae. *Flores* ♂ anthera solitaria. *Flores* ♀ sessiles, insectiferi pedicellati.—*F. Barteri*, Mildbr. et Burret in Engl. Bot. Jahrb. xlv. 231, partim, non Sprague.

Cameroons: Bipinde, Zenker 1690. Belgian Congo: Monbutland; Munza, Schweinfurth 3352, partim.

**F. Kirkii**, *Hutchinson*; affinis *F. cyathistipulae*, Warb., sed stipulis caducis, receptaculis basi rotundatis differt.

*Arbor* circiter 8 m. alta; ramuli juniores parum angulares, glabri. *Folia* obovato-oblancoolata vel elliptico-obovata, brevissime et obtuse acuminata, ad basin angustata, 9–15 cm. longa, 4–8 cm. lata, integra, coriacea, utrinque glabra et opaca; costa media supra plana, infra prominens, basi circiter 2.5 mm. lata, ad laminae apicem sensim angustata; nervi laterales utrinsecus 8–10, plerumque a costa sub angulo 70°–80° abeuntes, supra vix evidentes, infra prominentes et straminei, prope marginem conjuncti, juncturis nervum intramarginalem prominens formantibus; nervi tertiarum pauci, laxi, graciles, cum lateralibus subparalleli; veni infra reticulationem gracilem formantes; petioli 1.3–2 cm. longi, circiter 2.5 mm. crassi, glabri; stipulae deciduae. *Receptacula* axillaria, pedunculata, ovoidea, 1.5–2 cm. diametro, ostiolo prominente, leviter verrucosa, minute pubescentia vel glabra; pedunculi 4–7 mm. longi, puberuli. *Bractae basales* parvae, basi connatae, mox deciduae. *Ostiolum* bilabiatum, hians; bracteae in receptacula descendentes, duae lineares, obtusae, usque ad 6 mm. longae, ceterae subulato-lineares, acute acuminatae. *Flores* ♂ longe pedicellati; pedicelli 2 mm. longi; perianthii segmenta 3, elliptica, subacuta; stamen unicum; filamentum 1 mm. longum, subteres; anthera 1 mm. longa, connectivo crasso. *Flores* ♀ subsessiles; stylus gracilis. *Flores insectiferi* pedicellati, numerosi.

Zanzibar, Kirk; Sacleux 2020.



**F. Mildbraedii**, *Hutchinson*; affinis *F. Scott-Elliotii*, Mildbr. et Burret, foliis longe acuminatis, receptaculis multo minoribus differt.

*Frutex* magnus epiphyticus; ramuli angulares, apice circiter 6 mm. diametro, glabri. *Folia* oblonga vel oblongo-oblancheolata, caudato-acuminata, acumine obtuso vel subacuto 6–12 mm. longo, ad basin obtusum angustata, 10–16 cm. longa, 4–6 cm. lata, integra, rigide coriacea, utrinque glabra et opaca; costa media supra plana, infra prominens et straminea, basi 2.5 mm. lata, ad laminae apicem sensim angustata; nervi laterales utrinsecus 9–11, a costa sub angulo 45° abeuntes, graciles, infra distincti, intra marginem circiter 3 mm. conjuncti; nervi tertiarum venique infra reticulatorem densum stramineum formantes; petioli 2–3 cm. longi, subcrassi, sicco angulares, glabri; stipulae caducae. *Receptacula* axillaria, pedunculata, ovoideo-globosa, circiter 1.2 cm. diametro, ostiolo prominente, glabra; pedunculi robusti, 6–10 mm. longi, glabri. *Bracteae basales* deciduae, ad receptaculum arcte adpressae. *Ostiolum* poriforme; bracteae in receptacula descendentes, glabrae. *Flores* ♂ stamine unico, ♀ sessiles, insectiferi pedicellati.

Cameroons: Molundu district, *Mildbraed* 4262.

**F. Burretiana**, *Mildbr. et Hutchinson*; affinis *F. Mildbraedii*, *Hutchinson*, differt foliis obovatis nervis lateralibus arctis.

*Ramuli* obscure angulati, glabri. *Folia* oblanceolata vel oblongo-elliptica, breviter et obtuse acuminata, basi obtuse cuneata, 5–9 cm. longa, 2.5–4.5 cm. lata, integra, subcoriacea, utrinque glabra et opaca; costa media subprominens, ad laminae apicem sensim angustata; nervi laterales utrinsecus 11–12, arcti, a costa sub angulo 45° abeuntes, fere recti, intra marginem 2 mm. conjuncti, graciles, infra paulum prominentes; nervi tertiarum cum lateralibus paralleli; veni inconspicui; petioli 2–4 cm. longi, sicco nigro-purpurascens, glabri; stipulae caducae, lanceolatae, acutae, 6 mm. longae, carnosae, glabrae. *Receptacula* axillaria, geminata, pedunculata, globosa, 8–9 mm. diametro, glabra; pedunculi 8–10 mm. longi, parce et minute puberuli. *Bracteae basales* mox deciduae, ad receptaculum arcte adpressae. *Ostiolum* leviter productum, bilabiatum; bracteae in receptacula descendentes. *Flores* ♂ pedicellati; perianthii segmenta 4, linearia, marginibus membranaceis; stamen unicum; filamentum breve, crassum; anthera oblonga, vix 1 mm. longa. *Achaenia* ovoidea, laevia; stylus gracilis.

Cameroons: Molundu district; between Bange and Jukaduma, *Mildbraed* 4611.

## XXXII.—DECADES KEWENSES.

PLANTARUM NOVARUM IN HERBARIO HORTII REGII  
CONSERVATARUM.

### DECAS LXXXVI.

851. ***Polygala palustris***, *Lace* [*Polygalaceae-Polygaleae*]; a *P. triphylla*, Ham., capsulis valde nervosis distinguenda.

*Herbu parva*, è basi multiramosa, 4-9 cm. alta. *Folia ovata*, acuta, summo apice brevissime apiculata, basi in petiolum angustata, usque ad 2 cm. longa et 1-3 cm. lata, sicco membranacea, viva subcarnosa, pilis paucis brevissimis albis praesertim ad marginem instructa, nervis lateralibus utrinsecus 4-6 subtus prominentibus, integra; petioli 0.5-0.8 cm. longi, graciles, glabri. *Racemi* ad 3 cm. longi, omnino glabri, pedunculo communi 0.5-1 cm. longo; pedicelli vix 1 mm. longi; bracteolae minutae, una persistens. *Sepala* omnia decidua, tria exteriora inter se subaequalia, ovata, concava, apice rotundata, 1-1.5 mm. longa, membranacea, duo interiora aliformia, obovata, apice parum cucullata, basi angustata, circiter 2.5 mm. longa. *Petala* sulphurea, 2 lateralia ultra 1 mm. longa; carina vix 1.5 mm. longa, apice cucullo haud crista instructa. *Capsula* obcordata, 3 mm. lata, conspicue longitudinaliter nervosa, alata, ala valde transverse nervosa; semina nigra, minute tuberculata, glabra, strophiolata.

INDO-CHINA. Burma: Maymyo Plateau; frequent in marshy grass lands and on banks of small watercourses, 1050 m., *Lace* 3239, 5411.

852. **Triumfetta benguetensis**, *Sprague* [Tiliaceae]; affinis *T. suffruticosae*, Blume, a qua foliis utrinque densiuscule stellato-pubescentibus, nervis conspicuis venulis inconspicuis, floribus majoribus in alabastro stellato-pubescentibus, capsulis glabris differt.

*Caules* pallidi, stellato-pubescentes. *Folia* late ovata, acute acuminata, basi cordata, 8-12 cm. longa, 4-9 cm. lata, dupliciter crenato-serrata, basi subseptemnervia, utrinque subtus densius stellato-pubescentia; nervi conspicui praesertim subtus; venulae inconspicuae; petioli 2-7 cm. longi, dense stellato-pubescentes. *Cymae* ad 6 pro nodo, fasciculatae; pedunculi 0.5-1.5 cm. longi; pedicelli circiter 6 mm. longi, infra medium articulati. *Sepala* lanceolato-oblonga, 1.8 cm. longa, infra medium 1.8-2 mm. lata, supra medium 2.4-2.6 mm. lata, extra stellato-pubescentia, cornubus 1.6-1.7 mm. longis terminata. *Petala* spathulato-obovata, 1.5 cm. longa, 5-6 mm. lata. *Stamina* circiter 40; filamenta 1-1.2 cm. longae; antherae 1.5 mm. longae. *Stylus* 1.6 cm. longus, stamina circiter 4 mm. superans. *Capsula* brunneo-nigra, 5-6-locularis; corpus 5 mm. altum, 8 mm. diametro; aculei basi valde dilatati, 5-8 mm. longi, uncinati. *Semina* pro loculo saepius bina.

PHILIPPINE ISLANDS. Luzon: Province of Benguet; Itogon, *Williams* 1303; Bued River, *Merrill* 4315; Baguio, *Elmer* 8464.

853. **Acronychia Barberi**, *Gamble* (Rutaceae-Toddalieceae); species *A. laurifoliae*, Blume, affinis, sed ramulis gracilibus, foliis minoribus, floribus in cymarum paniculas nec corymbos brevissime pedunculatos dispositis, petalis et staminum filamentis fere glabris nec albo-villosis minoribus differt.

*Arbor parva* (?), ramulis gracilibus teretibus purpureis. *Folia* opposita, unifoliolata, glabra; foliola elliptica, apice obtuse acuta, basi cuneata, 4-7 cm. longa, 1.5-3 cm. lata, supra siccitate rubra, infra pallida, nervis utrinque 10-12 gracilibus

primum rectis deinde arcuatim junctis atque iterum marginem versus conspicue reticulantibus; petiolus gracilis, 0.5–1.5 cm. longus. *Flores* in cymarum paniculas axillares dispositi; pedunculus communis gracillimus, 1.5 cm. longus; bracteae foliaceae; pedicelli breves, graciles, bracteolati. *Calycis* lobi 4, ovati, acuti. *Petala* 4, lineari-oblonga, 3–5 mm. longa, apice incurva, utrinque glabra vel intus parce pubescentia. *Discus* cylindricus, 8-lobus, villosus. *Stamina* 8, petala aequantia, alterna paullo breviora; filamenta subulata, glabra vel basi perparce puberula; antherae ovatae. *Ovarium* villosum, 4-lobum, stylo subaequilongo. *Fructus* ignotus. *A. laurifolia*, Blume, var. 4, Hook f. in Fl. Br. Ind. i. 498.

S. INDIA. Madura District; Pulney Hills, *Wight* 364, Sept. 1836; Coimbatore District; Anamalai Hills, *C. A. Barber* 6027, May 1903.

854. **Aglaia Barberi**, *Gamble* (Meliaceae-Trichilieae) *A. Roxburghiana*, Miq., affinis, sed foliolis lanceolatis vel elliptico-lanceolatis nec oblanceolatis, longe acuminatis et fructu depresso-globoso differt.

*Arbor*, ramulis lepidotis rufo-brunneis, ultimis corticoso-incrassatis. *Folia* imparipinnata, ad 10 cm. longa, foliolis suboppositis 7, siccando rufo-brunneis; foliola lanceolata vel elliptico-lanceolata, 6–12 cm. longa, 2–4 cm. lata, apice longe acuminata, basi acuta vel fere acuminata, vix inaequalia, utrinque glabra vel ad costam lepidota, nervis primariis utrinque circa 12 prope marginem arcuatim junctis, reticulatione obscura; petioluli 3–7 mm. longi. *Inflorescentia* axillaris, ad 8 cm. longa, paniculata, lepidota, floribus minutis pedicellatis; rami permulti, approximati, ramulis ultimis cymosis; bracteae minutae, caducae. *Calyx* patelliformis, lobis brevibus acutis ciliatis. *Petala* oblongo-obovata, glabra. *Tubus* stamineus globosus, margine undulatus; antherae parvae, inclusae, ovatae. *Ovarium* villosum, stylo brevi, stigmate capitato. *Bacca* obovoidea, apice depressa, siccitate rufo-brunnea, 1–1.5 cm. diametro.

INDIA. Madras Presidency: Coimbatore District; Anamalai Hills, Udumanparai, *C. A. Barber* 4113, 5761; Tinnevely Hills, *Barber*, 2874; Travancore, Parapett Estate, 1000 m., Beddome.

855. **Aglaia Bourdillonii**, *Gamble* (Meliaceae—Trichileae); species distincta, *A. minutiflorae*, Bedd., quodammodo affinis, sed foliolis crassioribus 3–7 nec 15 lepidotis nec tomentosis, inflorescentia multo brevior et aliis notis maxime differt.

*Arbor* mediocris, ramulis inflorescentia bacca et pagina inferiore foliorum eximie ferrugineo-lepidotis. *Folia* imparipinnata, ad 25 cm. longa, foliola 7, opposita, oblanceolata, spathulata, 10–12 cm. longa, 2–4 cm. lata, apice obtusa vel obtuse acuta, basi longe cuneata, supra glabra, coriacea, siccitate flavida; infra maxime lepidota, nervis primariis 10–12 supra impressis, reticulatione obscura; petioli 7 cm. longi; petioluli circa 1 cm. longi, ultimus longior. *Inflorescentia*



axillaris, ad 18 cm. longa, paniculata, floribus minutis pedicellatis; pedunculus communis 5 cm. longus; rami patentes, ramulis cymosis; bracteae minutae, caducae. *Calyx* minutus, patelliformis, pubescens, lobis 5 brevibus acutis ciliatis. *Petala* ovata, glabra. *Tubus stamineus* urceolatus margine undulatus; antherae exsertae, obtusae. *Ovarium* stellato-tomentosum, stylo crasso, stigmatе parvo. *Bacca* primum subglobosa, deinde obovoidea, ad 2 cm. longa, 12 mm. lata. *Aglaia Roxburghiana*, Bedd. Fl. Sylv. t. 130 var. B., non W. et A.

INDIA. Hills of Travancore; Attraymallay Ghát, *Beddome*; various places about 1200 m., *T. F. Bourdillon*.

856. *Aglaia canarensis*, *Gamble* (Meliaceae-Trichilieae) *A. Maiae*, *Bourdillon*, affinis sed siccando non nigrescens, calycis lobis obtusis ciliatis et floribus sessilibus differt.

*Arbor*, ramulis lepidotis rufo-brunneis ultimis corticoso-incrassatis. *Folia* imparipinnata, ad 40 cm. longa, longe petiolata; foliola alterna vel subopposita, circa 13, lanceolata, 13-17 cm. longa, 5 cm. lata, apice acuminata, basi paullo inaequaliter obtusa, subrotundata, utrinque glabra vel pagina inferiore ad costam puberula, nervis primariis circa 12-15, secundariis conspicuis, reticulatione obscura; petioluli circa 1 cm. longi, ultimus longior. *Inflorescentia* axillaris, ad 35 cm. longa, paniculata, lepidota; pedunculus ad 15 cm. longus; rami distantes, patentes, ramulis ultimis spicatis; bracteae ovatae; bracteolae sub floribus 3-5, acutae. *Calyx* campanulatus, pubescens, lobis obtusis ciliatis. *Petala* oblonga, glabra, 1-2 mm. longa. *Tubus stamineus* subglobosus, glaber; antherae inclusae, magnae, acutae. *Ovarium* conicum, in stylum brevem productum. *Fructus* ignotus.

INDIA. Madras Presidency; S. Canara Dist. *Beddome* 1873.

857. *Ribes* (§*Berisia*) *Maximowiczii*, *Batalin* var. *floribundum*, *Jesson*. [Saxifragaceae-Ribesieae]; a typo racemis longioribus multifloris (25-floris) fructibus setis glanduliferis paulo tenuioribus multo laxius vestitis differt.

*Frutex* dioicus, ramosus, elatus, circiter 2 m. altus, inermis; rami ramulique tenuiter pubescentes, vetustiores cortice badio vel fusco obtecti, pilis diu persistentibus. *Folia* forma varia, ovoidea, basi magis minusve cordata, breviter acuminata, plerumque subtriloba vel subquineloba, interdum integra, lobo supremo majore, inaequaliter serrato-dentata, 6-10 cm. longa lataque, supra pilis brevissimis parcis obsita, infra molliter pubescentia, nervis prominulis densissime villosis; petioli molliter villosi et praeterea glandulis stipitatis instructi, 2-4 cm. longi. *Racemi* in brachycladiis terminales, deinde ob ramulum e brachycladiis evolutum pseudo-laterales, solitarii, 12-15 cm. longi, plus minusve erecti vel apice subpenduli; squamae scariosae; bracteae lanceolatae, acutae, 5-7 mm. longae, pubescentes et parce glandulosae; pedicelli 3-4 mm. longi, indumento eodem ac bracteae. *Flores* ♂, pelviformes. *Receptaculum* 2 mm. altum. *Calyx* intense fusco-ruber; lobi subrotundi, 2-3 mm. longi. *Petala* minuta, 1 mm. longa, spatulato-unguiculata, ungui lineari, limbo 1 mm. lato. *Stamina* 1 mm.

longa, filamentis paulum dilatatis. *Stylus* ovarii imperfecti profunde bifidus, petalis subaequilongus. *Flores* ♀ in statu anthesis haud noti, calyce et corolla in fructu persistentibus ut in floribus ♂. *Staminodia* filamentis tuberculiformibus receptaculo adnatis. *Fructus* globosus, circa 1 cm. diametro, setis paucis dilatatis 1 mm. longis glanduliferis et pilis tenuibus albis patentibus intermixtis tectus.

WESTERN CHINA. Without precise locality, 2450 m. *E. H. Wilson* 3579, July, 1903.

A specimen was received from Colonel S. R. Clarke, C.B., Borde Hill, Cuckfield, Sussex, who stated that it was of Chinese origin, and believed that it represented "Wilson, 958." The plant was matched with specimens collected by Wilson in 1903, which approach *R. Maximowiczii*, but differ in certain minor points. Since the male and female flowers of *R. Maximowiczii* were so far unknown, it has been deemed desirable to describe them in detail.

858. ***Stenocarpa*, Blake** (Compositae—Heliantheae—Galinsogianae) gen. nov.; *Galinsogae* affinis, a qua receptaculo cylindrico-conico paleis angustissimis squamellis pappi 10 lacerato-fimbriatis alternis truncatis alternis apice abrupte aristatis differt.

*Capitula* heterogama radiata, floribus radii 1-seriatis femineis fertilibus, disci hermaphroditis fertilibus. *Receptaculum* cylindrico-conicum, paleis linearibus angustissimis subplanis scariosis flores disci subtendentibus. *Involucrum* subbiseriatum, campanulatum, squamis subaequalibus oblongis vel oblongo-obovatis obtusis vel rotundatis submembranaceo-subcoriaceis paullum induratis striatis ciliatis demum reflexis. *Corollae* radii ligulatae patentes, femineae, fertiles, oblongae, regulares, flavidae, sparse pubescentes, faucibus campanulatis tubum superantibus, limbo 5-dentato. *Antherae* flavidae, basi obtuse cordatae, apice appendice ovata obtusa flavida munitae. *Styli* florum disci ramis brevibus obtusis papilloso-hirtellis, non appendiculatis. *Achenia* radii trigona, sparse pubescentia, calva; disci turbinato-obovoidea, nigra, sparse pubescentia, basi callosa, parum incrassata, a latere paullum compressa. *Pappus* e squamellis 10 hyalinis oblongis vel cuneatis vel cuneato-obovatis lacerato-fimbriatis compositus, 5 alternis truncatis 5 alternis apice truncatis abrupte aristatis, aristis tenuibus ciliolatis squamellae longioribus.—Herba annua tenuissima, ramosissima, foliis paucis oppositis radicalibus majoribus, capitulis numerosis minimis filiformiter pedunculatis.

• ***Stenocarpa filipes*, Blake, comb. nov.**

*Herba* 2.5–4 dm. alta, supra vel e basi ramosissima. *Caulis* tenuissimus, glaber, purpureo-brunneus, striatus. *Folia* radicalia pauca (2–4), oblonga vel oblongo-ovata, acuta vel obtusiuscula, basi cuneata, sparse serrata, tuberculato-hispida, 1-nervia. 1.2–2.7 cm. longa, 0.6–1.1 cm. lata, petiolis marginatis 1.5–6 mm. longis; caulina linearia vel lineari-lanceolata, 2–3.3 cm. longa, .1–3 mm. lata. *Capitula* numerosissima, laxe paniculata, 6.5–10 mm. lata, in pedicellis nudis filiformibus 1.5–6 cm.

longis basi subulato-bracteolatis. *Discus* 2-3 mm. altus, 2-3.8 mm. diametro. *Involucri* subbiseriati 1.8 mm. alti squamae circa 8, ad 0.7 mm. latae. *Radii* circa 6-8, oblongi, in tubo pilosi, 3-8 mm. longi, 1 mm. lati. *Corollae* disci in tubo pilosae, in dentibus et sparse in faucibus pubescentes, 1.2 mm. longae (tubo 0.4 mm). *Paleae* angustissimae, subplanae, acutae, ad apicem obscure appresse spinuloso-serrulatae, 1-nerviae, 1.8 mm. longae, ad 0.15 mm. latae, demum deciduae. *Achenia* radii subglabra, ad 0.7 mm. longa, calva; disci nigra, oppresse pubescentia, 0.4 mm. longa. *Squamellae* pappi 5 truncatae, 0.4 mm. longae, 5 apice abruptissime aristatae, 0.9 mm. longae (arista inclusa). *Galinsoga filipes*, Hemsley, Diagn. Pe Nov. ii. 34 (1879); Bibl. Centr. Am. Bot. ii., 204, tab. 50 (1881).

MEXICO. Sinaloa; Carro de Pinal, December, 1848, *Seemann* 1473. Reported also by T. S. Brandege (Zoe, v., p. 224 (1905)) as abundant in damp soil near Cofradia, Sinaloa.

The genus *Galinsoga*, Ruiz & Pavon, differs from *Stenocarpa* in its merely acutely convex receptacle, broadly linear or oblong pales, uniform more numerous not aristate pappus scales, and larger heads. The characters by which *Stenocarpa* is distinguished were long ago pointed out by Bentham in the *Genera Plantarum* (ii. p. 390 (1873)), who, however, did not assign to them the generic value which they seem to deserve.

859. ***Diospyros glandulosa*, Lace** [Ebenaceae]; a *D. molli*, Griff., foliis floribusque majoribus recedit.

*Arbor* dioica, 5-12-metralis, cortice griseo-brunneo parum reticulato-fisso; ramuli purpureo-brunnei, leucicellati, primo densius brunneo-pubescentes, mox glabri. *Folia* alterna, ovata, oblonga, lanceolata oblanceolatae, obtuse acuminata, basi breviter cuneata vel in petiolum gradatim angustata, usque ad 12 cm. longa et 6 cm. lata, chartacea, pagina utraque praesertim ad nervos pubescentia, pilis albis nisi pagina superiore ad nervos brunneis, glandulis rubris caducis instructa, subtus pallidiora; nervi laterales utrinque 5-6, arcuati, intra marginem anastomosantes, supra impressi, subtus prominentes, margine integro; petioli 0.5-1 cm. longi, densius brunneo-pubescentes, basin versus parum canaliculati. *Flores* ♂ in cymas 3-6-floras dense pubescentes dispositi, bracteolis minutis; alabastra late ovoidea. *Calyx* 4-6 mm. longus, tubo intus excepto utrinque albo-pubescens, lobis 4 ovatis vel triangularibus acuminatis 4 mm. longis. *Corolla* lobis puniceis exceptis alba, urceolata, 6-8 mm. longa; lobi 4, contorti, subrotundi, emarginati, 2 mm. longi, parte superiore exteriori loborum et nervo mediano pubescens. *Stamina* saepissime 25, interdum pauciora, per paria connata; filamentum antherae exterioris brevissimum; anthera interior sessilis; antherae parum falcatae, apice acutae. *Flores* ♀ solitariae, pedunculis brevibus validis pubescentibus suffulti. *Calyx* alte 4-fidus; tubus brevissimus; lobi orbiculares, subito breviter acuminati, 1 cm. longi, utrinque pubescentes. *Corolla* pallide lutea, urceolata, circiter 6 mm. diametro, tubo 5 mm. longo, lobis 9 mm. longis iis floris masculi similibus nisi majori-

bus et recurvis. *Staminodia* 12, sessilia, antheris, linearibus acutis villosis. *Ovarium* dense pallide brunneo-pubescens, 8-loculare; styli 4, inferne connati, villosi; stigmata bifida. *Fructus* globosus, 2.5 cm. diametro, luteus, pilis albidis vel pallide brunneis deciduis plus minusve tectus; calyx persistens, accrescens, patulus.

INDO-CHINA. Burma; Maymyo Plateau, 1050 m., *Lace* 3119, 3198, 5191, 5196, 5197. Pegu, *Kurz* 1008.

860. *Arundinaria vagans*, *Gamble* (Gramineae-Bambuseae); species nana, rhizomate late vagante insignis et virgulta densa cito faciens.

*Frutex* erectus, 1-1.5 m. altus, e rhizomate subterraneo late vagante culmos singulos per intervalla proferens. *Culmi* graciles erecti; fistulosi, prope basim circa 5 mm. diametro, internodiis 12-20 cm. longis teretibus sub nodis albescentibus; cataphylla straminea, 8 cm. longa, 1 cm. lata, glabra, ore truncata et ut lamina perbrevis ciliis paucis cito deciduis munita. *Folia* chartacea, lineari-lanceolata, sub apice setaceo-acuminato contracta, basi rotundata, pilis nonnullis sparsis exceptis glabra, subtus molliter hirsuta, utroque margine scabra, 12-18 cm. longa, 2-2.5 cm. lata; nervi utrinque 5-6, minoribus circa 6-8 interpositis et venulis transversis conspicue sed irregulariter tessellantibus circa 25 per cm.; petiolus 2-3 mm. longus, planus; vaginae striatae, ore ciliis paucis cito deciduis minutae; ligula brevis, rotundata, pubescens. *Flores* ignoti. *A. pygmaea*, Kew Gardens Arboretum List, 2nd ed. 1902, p. 783, non *Kurz*. *Bambusa pygmaea*, Mitford, The Bamboo Garden, p. 112-113; Bean, Trees and Shrubs, i. 218, et aliorum non Miquel.

A remarkable species growing gradually and quickly into dense thickets of about 1 metre high. Its origin is not known but it is probably from Japan. It has long been cultivated at Kew and elsewhere. Lord Redesdale says of it: "Small as this bamboo is, it is a most determined little vagabond, its rampant rhizomes forcing their way everywhere, especially where they are not wanted, and taking no denial. It is a most valuable plant for making a thick carpet in a wild place, defying all attacks of frost or weather, as happy in winter as in summer, gay and bright at all times of the year, and a deadly foe to weeds; but beware of it in a border; it invades everything, and will soon crowd out less sturdy neighbours. I have even had to dig up a gravel path to get rid of it." (The Bamboo Garden, p. 113.)

### XXXIII.—SIR JAMES MURRAY.

S. A. SKAN.

It is not our purpose to attempt a biographical sketch of the Editor of *The New English Dictionary*. In many places since his death on July 26th, more or less detailed accounts of his busy and eminently useful life have appeared, and in some of them there are allusions to the Royal Botanic Gardens, Kew, as one of the many sources from which help was obtained in the preparation of his monumental work, help that is fully acknowledged in the prefaces to the various volumes. A note



embodying a few remarks on certain of the words which were the subjects of communications to Kew may be of some interest here, and may at the same time serve as further evidence of the wide range of the activities of the establishment.

Sir James Murray's correspondence began with a postcard dated May 7th, 1887, and continued with here and there a rather long silence till June 9th of the present year. His first inquiry related to the identification of the Cabbage Tree. Several palms, including *Areca* or *Oreodoxa oleracea*, *Chamaerops Palmetto*, *Euterpe oleracea*, "whose central unexpanded mass of leaves or terminal bud is eaten like the head of a cabbage," bear this common name.

Burgundy Hay or Burgundy Trefoil was the subject of the next request for help, and with regard to these the Dictionary records that the names have been applied by English writers to the Lucerne, *Medicago sativa*, but in French originally to Sainfoin, *Onobrychis sativa*.

We learn from an inquiry of July 21st, 1887, that Calambac is an eastern name of Aloes-wood or Eagle-wood, the product of *Aquilaria Agallocha*, and from a later one that the name Campion was first used by Lobel in 1576, his Rose Campion being the well-known *Lychnis coronaria*.

The earliest record for Calyx was found in the first volume of Malpighi's *Anatome Plantarum* which was published in London in 1675, though the preface is dated 1671. His contemporary, Nehemiah Grew, did not use this word, but Empalement, and this was the practice of many later authors. Calyx reappears in Ray's *Historia Plantarum*, 1686. It is necessary to bear in mind that in Latin there are two very similar but distinct terms, calix, from the Greek *Κύλιξ*, a cup, goblet, drinking vessel, and calyx, from *Κάλυξ*, that which encloses anything, a husk, hull, shell, etc. The Dictionary says that "the two words are to a great extent treated as one by modern scientific writers, so that the calyx of a flower is commonly (though quite erroneously) explained as 'the flower cup,' and the form calyx and its derivatives are applied to many cup-like organs, which have nothing to do with the calyx of a flower, but are really meant to be compared to a calix or cup."

The familiar word Catkin has been part of the English language since 1578, when Lyte, in his translation of Dodoens wrote: "Leaues spring foorth after the Catkins, agglettes, or blowinges." It is derived from the Dutch *katteken*.

Dr. Murray confessed in May, 1888, that he had never heard of the word *Celeriac*, and supposed that it was rare. In the Dictionary he states that it does not appear to be known outside of English and records the earliest date for its use as 1743.

In popular language Chestnut may mean either the Horse Chestnut (*Aesculus Hippocastanum*) or the Sweet or Spanish Chestnut (*Castanea sativa*), and as poets and other writers have also used the term without sufficient qualification, Dr. Murray, before accepting Tennyson's lines from "The Miller's Daughter"—"Those three chestnuts near that hung in

masses thick with milky cones," as an illustration of the use of the word Chestnut in the sense of Horse Chestnut, cautiously submitted the matter to the Director of Kew. The "milky cones" point to an easy identification.

A letter of November, 1888, expresses the interesting conclusion at which he had arrived as a consequence of his researches into the history of the word Cherry. He did not think that *Prunus Cerasus* or *P. avium* could be native in Britain, for the early native names are from Latin, none Teutonic or Celtic, and he remarked: "Now considering that the Wild Cherry, if native, would be rather an important fruit—as British fruits went—it seems quite improbable that it should have had no name. The Latin name in Old English and in Celtic looks as if it was not known till the Romans introduced tree and name." In connection with this it may be mentioned that Mr. Clement Reid, in his *Origin of the British Flora*, does not refer to *Prunus Cerasus* at all, but he shows that fossil remains of *P. avium* have been discovered in neolithic deposits in Essex and at Gayfield, near Edinburgh, and in interglacial deposits in Sussex.

Linnaeus named the genus *Cinchona* in commemoration of Lady Ana de Osorio, Countess of Chinchon, who is reputed to have been the first to make known to Europe the healing virtues of its bark, familiar as Peruvian Bark, the source of the quinine of commerce. This being so, several writers, including Sir Clements Markham, who took so important a part in those measures which secured the introduction of the plant into India, pointed out that the name should be Chinchona, and strongly advocated the adoption of this spelling. As a lexicographer Sir James Murray was much concerned about this, because it was not merely that the one word would have to be changed, but may derivatives, botanical and chemical, as well. To be consistent all would have to be changed and that he thought would be "a large order." Eventually the word appeared, as Linnaeus wrote it, with a cross-reference from Chinchona.

One letter revealed a doubt in the editor's mind that the name China, as used in *Smilax China*, was really derived from the country. Its unusual form as a specific name surprised him, and was, he said, like using India, Canada or Germania for species. There appears to be no doubt that *Smilax China*, known to Linnaeus as a native of China and Japan, and as the source of Radix China or China Root, owes its name to the country, but in the Dictionary it is stated that the French synonyms of the word China, esquine and squine, and the mod. Lat. schina, point to confusion with some other word. The allusion to the above recalls to mind a letter in which an emphatic protest was directed against the very cumbrous specific names, particularly long hyphenised personal names, given by some botanists.

More than a quarter of a century ago Professor Bayley Balfour (in *Ann. Bot.* i. 184) called attention to the erroneous use of Cocoa-nut, instead of Coco-nut, for the fruit of *Cocos nuci-*

*fera*, and referred to the help in the matter which he had obtained from Dr. Murray, who later on discussed the subject in a letter to Kew. It is quite clear that Cocoa-nut is wrong, yet in many publications, including those of some important botanical establishments, this spelling is still used. The mistake is attributed to Dr. Samuel Johnson, who in his Dictionary, confused the Coco-nut (*Cocos nucifera*) with Cocoa (*Theobroma cacao*), though in using the word Cocoa he showed that it came from the Spanish cacaotal, "and therefore more correctly written Cacao." Johnson quotes from Miller's Gardeners' Dictionary and Murray says that Miller wrote Coco Nut, but this statement appears to be incorrect, as no instance of that spelling has been found in his works, but Cocoa nut occurs several times. Miller, however, did not confuse *Cocos* and *Theobroma*, the latter of which appears under Cacao. Prof. Skeat, in his Etymological Dictionary, has "Cocoa, the cocoa-nut palm-tree," and quotes De Barros, Asia, for the origin of the word. It is "called coco by the Portuguese in India on account of the monkey-like face at the base of the nut, from coco, a bugbear, an ugly mask to frighten children." Prof. Skeat explains Cocoa (*Theobroma*) as a corrupt form of Cacao.

The terms Phanerogamia and Cryptogamia, as commonly used, occasioned Dr. Murray some surprise. With regard to the latter he wrote: "Like the names of other Linnean classes and orders, it is a singular noun, and was always so treated in the 18th century; but in the 19th century, probably by unthinking confusion with classes and orders of the animal kingdom (*e.g.*, Vertebrata, Mammalia, Carnivora) which are adjs. neuter plural, it has been (first apparently by persons not botanists, and afterwards by some botanists also) misused as a noun plural Cryptogams."

On one occasion there was a request for the etymology of *Cypripedium* which Sir James regarded as apparently a corruption of Cypripodium, and on another for the dates of introduction of the Red and Black Currants. These appear to have been brought to England some time shortly before 1578, when Lyte, in his edition of Dodoens, referred to Red Currants as "Redde Gooseberries" and "Bastard Corinthes."

Cork, Costmary, Cranberry, Damask-Rose, Passion-flower, Petal, Petunia, Phylloxera, Pipe and Pipe-tree, Plantain, Pompelmoose, Potato, Tangerine, Tea and Tobacco, are a few of the numerous other words about which Sir James Murray wrote to Kew.

The earliest record for Petal (or Petala) is 1704, when Harris used it in his *Lexicon Technicum*, and the first mention found in any English publication of the terrible vine pest, Phylloxera, was in the *Gardeners' Chronicle* for October 31st, 1868.

It is generally known that *Syringa*, the generic name of the Lilac, is also a popular name for *Philadelphus coronarius*, the Mock Orange. The researches into the applications of the terms Pipe and Pipe-tree, as summarised in the Dictionary, show that *Syringa*, as a name for the *Philadelphus*, dates at least from

Gerard's *Herball*, 1597. It was, moreover, used as a generic name for the plant by Tournefort and was first published as such in Adanson's *Familles des Plantes* in 1763. However, Linnaeus had before this (in 1735) used the name as now generally understood by botanists. The "Blew Pipe Tree" of Parkinson's *Paradisus*, 1629, is our *Syringa vulgaris*, the common lilac. His "Single White Pipe Tree" is *Philadelphus coronarius*, of which he says "the flowers . . . are of a strong, full, or heady sent, not pleasing to a great many." Pipe or Pipe-tree was used for the Mock Orange, because, as Gerard says, "the staks and branches thereof, when the pith is taken out, are hollow like a pipe."

Five columns of the Dictionary are occupied by the word Potato with its combinations and derivatives. Dr. Murray, judging from his letters, was perplexed by the statement appearing in accounts of the introduction of the potato into this country, that it was brought from Virginia. "It is generally assumed to have been first brought by the remnant of Raleigh's ill-fated colonists, whom Drake picked up on his way home and brought back to England in 1586. . . . But the question is how these people who lived barely two years in Virginia should have found or grown there a plant belonging to the very antipodes of that part of the American continent. Moreover, there is no later mention of the plant as cultivated there, the plant there grown until about 1800 being the Sweet or Spanish Potato (*Batatas*), called in America the Carolina P[otato], while *Solanum tuberosum* was at first and still is largely known as Irish Potato, from being introduced by Irish settlers at Londonderry, New Hampshire, in 1719, whence its culture gradually extended into other parts of the North American colonies." Gerard cultivated the plant in 1596, but he was in error in saying that he obtained it from Virginia. It first reached Europe soon after 1580, being introduced into Spain from Quito. It spread from Spain into Italy about 1585, and two years later was grown at Mons in Hainault. It soon appeared in various continental Botanic Gardens, including Breslau, where it was found in 1590. "The plant may have been brought independently to England . . . but no contemporary statement associating Raleigh's name with the potato has been found."

An exhaustive treatment of the words Tea and Tobacco would, as may be supposed, entail an enormous amount of research, and of this the columns of the Dictionary bear ample evidence. An enquiry addressed to Kew with regard to the latter was: "whether there is any connection between tobacco and the name of the island Tobago?" The Dictionary states that "Columbus gave this island the appellation of Tobago, or Tabago, from a whimsical notion that its form resembled that of a tubical instrument, so called by the Aborigines, with which they inhaled the fumes of tobacco."

During the current year several inquiries have been received from Sir James Murray, the last in a letter dated June 9,



when the botanical names of various Tussock-grasses were in request. In April he submitted to Kew some proof of the Dictionary, asking for information and criticisms with regard to certain combinations of Turkey included in it, and whether we could enlighten him as to the insect which mines under the bark of pear-trees? Further, whether the name of the insect mentioned by some old authors on gardening as the Turk could be identified with Turk, the ethnical or political name? The mining insect may possibly be *Scolytus rugulosus*, but no instance of the application of the name Turk to this could be found. The American plum-weevil (*Conotrachelus nenuphar*) is known, at least in America, as Little Turk, and the identity of Turk in this case with the political name is indicated in the *Century Dictionary*, where it is stated that "it is so called from the crescentic punctures made by the female, in allusion to the emblem of the Ottoman Empire."

Sir James Murray was pre-eminently a philologist, but he was deeply interested in many branches of knowledge, including zoology, geology and botany. His letters often disclosed a desire for more information about plants than was actually required for his Dictionary, and the temptation to seek enlightenment on anything about which he was in doubt seemed as if the Baconian maxim—"He that questioneth much will learn much"—was ever in his mind. He questioned, however, to very little purpose in at least one instance to which he referred in writing to Kew about the Sycamore (*Acer pseudo-platanus*). Amongst its several popular names is that of Plane or Plane-tree, which is perhaps more frequently used in Scotland than in England, and it was the only Plane known to Murray as a boy in the South of Scotland. On seeing the London Plane (*Platanus acerifolia*) for the first time, at Wood Street corner in Cheapside, he confessed to having been puzzled and surprised, and added: "I asked many passers if they could tell me what tree it was. They looked at the tree and then at me and said: 'It's a tree,' or, some of them, 'The tree,' and passed on. I found it out for myself eventually."

In dealing with the many questions received at Kew from its world-wide circle of correspondents it has often been necessary to turn to the famous Dictionary and sometimes to the Editor himself. It is unnecessary to say that he was found as ready to give help as to ask for it.

The passing of the courteous and scholarly Editor of *The New English Dictionary* has deprived Kew of an old and esteemed friend. In his work there remains of him an imperishable memorial.

#### XXXIV.—MISCELLANEOUS NOTES.

Mr. W. G. CRAIB, M.A., whose appointment as Assistant for India in the Herbarium was reported in *K.B.* 1909, p. 225, has been selected for appointment as Assistant to the Professor of Botany in the University of Edinburgh, with the status of

University Lecturer on Forest Botany and Indian Forest Trees,  
Royal Botanic Garden, Edinburgh.

Mr. J. HUTCHINSON, whose appointment as Assistant for Tropical Africa in the Herbarium, was also reported in 1909 (*K.B.*, l.c.), has been appointed by the Secretary of State for India in Council, with the concurrence of the Secretary of State for the Colonies, Assistant for India in succession to Mr. Craib. The Secretary of State for the Colonies has sanctioned the appointment, as a provisional measure, of Miss M. L. GREEN, B.Sc., a temporary member of the Technical Staff at Kew since 1st August, 1912, and of Mr. F. FLIPPANCE, first appointed to the Kew Staff on 17th November, 1913, to perform conjointly the duties of the Assistant for Tropical Africa in the Herbarium.

FREDERICK MANSON BAILEY.—It is with great regret that we have to record the death of the veteran Colonial Botanist of Queensland, Mr. F. Manson Bailey, C.M.G., which occurred at Brisbane on June 25th. Mr. Bailey was in his 89th year, and was working vigorously until within a few days of his death; letters written by him were received at Kew by the mail reaching England at the end of July. F. M. Bailey was born in Hackney on March 8th, 1827, his family having conducted for many years the business of nurserymen and seedsmen in London. With a view to finding a fresh opening for botanical and horticultural enterprise, his father, John Bailey, in 1838 set sail for Australia in the frigate *Buckinghamshire*, of 1500 tons—the largest vessel that had till then sailed to the Antipodes—and landed at Holdfast Bay, South Australia.

John Bailey was appointed Government Botanist and laid out the first botanic garden in Adelaide. Times of stress ensuing in South Australia, however, caused John Bailey to resign his position, and he then established a nursery in which his son Manson helped in the management and control.

The gold rush in Victoria attracted young Manson Bailey, and he abandoned gardening, only to resume his old work on the illness of his father. In 1858 he journeyed to New Zealand and took up land in the Hutt Valley, but was forced to leave on the outbreak of the Maori War, and after a brief stay in New South Wales he landed at Brisbane in 1861, where he established a seed business, which, however, was not a continuous success owing to financial conditions in Queensland.

In 1875 the Queensland Government appointed a committee to inquire into diseases affecting live stock and plants, and F. M. Bailey was appointed to investigate the botanical problems involved. The work was after his own heart, and he travelled far and wide throughout the State and contributed valuable articles dealing with the native grasses of Queensland. His next appointment was the charge of the botanical section of

the Queensland Museum, and in 1881 he was made Colonial Botanist, and so remained until his death, discharging its duties with conspicuous ability and untiring devotion. The distinction of the C.M.G., which was conferred upon him in 1911, was a fitting recognition of his great services to Queensland in the domains of botany and agriculture. His contributions to botanical science are many and cover the purely systematic as well as the economic side of the subject; medicinal and other uses of plants being a source of particular interest to him. His more important publications include "The Flora of Queensland," in seven volumes; "The Handbook of the Ferns of Queensland"; a sketch of the "Economic Plants of Queensland"; "Plants reputed Poisonous and Injurious to Stock," etc., etc.

It may be remembered that in the nineties, when a retrenchment was made in Queensland expenditure, the post of Colonial Botanist was abolished, but such was Mr. Bailey's devotion to his work that he continued to discharge his duties unpaid; public protest, however, was so strong that he was soon reinstated in his former position.

At Kew his loss will be keenly felt. Seldom did the Australian mail fail to bring a letter from him, usually dealing with some difficult question of systematic or economic importance, written to the last in his own hand, and the Herbarium has been greatly strengthened as regards the Queensland flora by the critical specimens received from him from time to time.

**Presentations to Museums.**—The following miscellaneous specimens have been received in addition to those previously recorded in the Bulletin:—

Dr. Durham, Eigne Hill, Hereford.—Sample of seeds of *Phaseolus vulgaris* sold in Germany as "Soy beans."

Imperial Commissioner of Agriculture for the West Indies.—A collection of photographs of trees and general views in the Botanic Station, Antigua.

Curator, Botanic Station, Dominica.—Seeds and wood of the "Bois Bambara" (*Diospyros Ebenaster*). Fruits of *Achras Sapota*.

Miss L. H. Bullock, Stewart's Grove, Chelsea. Branch of *Cedrus Libani* from Mount Lebanon.

Mr. Douglas Smith, Erpingham, Norfolk.—Transverse section of stem of *Abies numidica*.

Mr. J. A. Campbell, Arduaine, Lochgilphead.—Planting tool employed in forestry.

Mr. A. J. Orner, Melsetter District, Rhodesia.—Specimens of wood of *Maba Mualala*, *Holstia Swynnertonii*, *Schefflerodendron gazense*, *Lovoa Swynnertonii*, *Parinarium Gillettii*, and *Vitex* sp.

Dr. H. B. Guppy, Salcombe, S. Devon.—Picture frame made from one of the buried "Cedar" logs (*Juniperus brevifolia*?) once common in the Furnas Valley of San Miguel in the Azores. [See K.B. 1914, p. 316.]



Mr. J. Hunter, South Hampstead.—Wood of Poplar, in which a piece of rope has become overgrown.

Director of Agriculture, Northern Provinces, Nigeria.—Sample of "Iburu" grain (*Digitaria Iburua*) cultivated as a food crop in N. Nigeria.

Dr. G. Henderson, Otford, Kent.—Specimens of *Calotropis procera*, from Sind, consisting of silky fibre or floss from the fruit, fibre extracted from the stems and netting made therefrom.

Mr. T. Burbidge, Oak Deposits, Ltd., St. Peter's Wharves, Hammersmith.—Planks of oak timber cut from logs recovered from the bed of the River Moksha, Russia.

Mr. A. Chandler, Cumberland Road, Kew.—Follicles and seeds of *Strophanthus gratus*, from the Cameroons.

Lady Church, Shelsley, Kew.—Fruits of Yebb or Yeheb (*Cordeauxia edulis*), seeds of *Cyanotis axillaris* and a sample of Black Burmese Rice.

Mr. S. T. Heard, Rossdohan, Kenmare.—Engraved portrait of H.R.H. Frederick Lewis, Prince of Wales.

Mr. Hugh Richardson, Stockfield-on-Tyne, Northumberland.—Specimen of diseased timber of Larch.

Assistant Superintendent of Agriculture, Southern Provinces, Nigeria.—Natural graft in Orange, Onitsha. J. M. H.

**Botanical Magazine for July.**—The plants figured are *Echium Perezii*, Sprague (t. 8617); *Polystachya paniculata*, Rolfe (t. 8618); *Meconopsis Prattii*, Prain (t. 8619) and *Rhododendron concinnum*, Hemsl. (t. 8620).

The *Echium* is a striking species from the Island of Palma, nearly allied to *E. Wildpretii*, H. H. W. Pearson. The leaves, however, are decurrent to the base, and the thyse is more lax and the style arms longer than in that species. The flower colour is pale pink, while in *E. Wildpretii* it is a pale red. The striking difference in habit is well seen in the photograph published in *K.B.* 1914, pp. 266, 267. The species was introduced to cultivation by Dr. G. V. Perez, of Teneriffe, in 1911.

*Polystachya paniculata* was discovered by Afzelius in Sierra Leone, and considered by Swartz to be a *Dendrobium*. Its true identity was only established when the type specimen was sent to Kew from Upsala in connection with the preparation of the Flora of Tropical Africa. It has recently been found by Mr. C. B. Ussher in the Mabira Forest, Uganda, and its introduction is due to the late Sir Trevor Lawrence, whose son, Capt. C. T. Lawrence, sent plants from West Africa. The orange-red flowers borne in dense panicles are very striking.

*Meconopsis Prattii* was originally included first under *M. sinuata*, Prain, and then under *M. rudis*, Prain, but fuller material has shown it to be a distinct species. It is distinguished by its herbaceous foliage, shorter flowering pedicels, white stamens and pale green stigma. A native of Szechuan and Kansu at elevations of 13,000—15,000 ft., its introduction is due equally



to Mr. E. H. Wilson and Mr. F. K. Ward. The plant figured was raised at the Royal Botanic Gardens, Edinburgh.

The rhododendron is one of a number of closely allied forms from China, and it has been found desirable to include under the name *R. concinnum* not only *R. yanthinum*, Bur. & Franch., but *R. Benthamianum*, Hemsl., and *R. coombense*, Hemsl., already figured at t. 8280. The leaves are conspicuously mucronate and densely lepidote below, and the calyx lobes are remarkably polymorphic in shape, sometimes being scarcely present. The plant was collected by Mr. E. H. Wilson at Ta-chien-lu, Western Szechuan, the home also of the other forms included in this species, and the plant figured was presented to Kew in 1908 by Messrs. J. Veitch and Sons.

**Botanical Magazine for August.**—The plants figured are *Alpinia mutica*, Roxb. (t. 8621); *Rhododendron Souliei*, Franch. (t. 8622); *Corylus mandshurica*, Maxim. (t. 8623) and *Senecio glastifolius*, Linn. f. (t. 8624).

*Alpinia mutica* is an interesting plant formerly grown in England, but lost to cultivation for many years. Its reintroduction is due to Mr. H. N. Ridley, whilst Director of the Botanic Gardens, Singapore, and the figure has been prepared from a plant sent by him to Kew. The species was described by Roxburgh from Penang in 1810. It was regularly grown at Calcutta, and its introduction to England must have taken place at the time of its discovery, since it is recorded as having been grown in Bayswater before 1812. At the Liverpool Botanic Garden it flowered regularly, but soon after 1828 it became rare, and eventually disappeared from British collections. Its nearest ally is *A. calcarata*, Roxb. but it is distinguished from that species by the differently-shaped labellum with basal hirsute glands instead of spurs as in *A. calcarata*.

The Rhododendron is of remarkable beauty with its rosy-flushed flowers and handsome leaves borne on purple petioles. A native of China, it was collected by Mr. E. H. Wilson at about 12,000 ft. near Ta-chien-lu in Western Szechuan, where it occurs in upland thickets and woods. Our plant was raised from seed presented by Prof. Sargent, Arnold Arboretum, in 1909. *R. Souliei* belongs to the section *Eurhododendron*, the leaves being destitute of glands, and it is easily distinguished from all others by its long-petioled, wide-based leaves, calyx lobes edged with red glands, and flat saucer-shaped flowers.

The Manchurian Hazel belongs to a group having the involucre prolonged into a tube, sometimes as much as  $1\frac{1}{2}$  in. long. *C. rostrata* from Eastern North America is very closely allied to *C. mandshurica*, but in the latter the leaves are usually broader and often somewhat deeply lobed in the upper part. Our species is common in the mountains of E. Manchuria, and was first collected in 1855 by Maximowicz near the Amur River. It was introduced to Kew by seed received from the late Dr. Bretschneider in 1882.

*Senecio glastifolius* is a native of the South African Coast from Riversdale to Algoa Bay. It is nearly allied to *S. multi-*

*bracteatus*, Harv., but the leaves are not scabrid and the peduncles only slightly bracteate. The flowers are rose-lilac and borne on tall, slender stems.

**Forestry in Cyprus.\***—A report has been published dealing with forestry matters in Cyprus between the years 1879 and 1914. From this report a good idea can be formed of the adverse conditions under which the forestry officials work, for, in addition to the heavy handicap of an adverse climate, they have almost throughout been hampered by lack of funds. Notwithstanding these drawbacks, however, they have succeeded in establishing plantations in several districts which appear to be successful in two of the main objects—the production of fuel and the amelioration of the climate. Plantation work was begun in Cyprus in 1881 under the direction of M. Madon, and the sum of £5000 was voted for forming plantations with a further sum of £832 for upkeep. In 1883 the vote for upkeep was reduced to £410, with no provision for new plantations. By 1889 the vote was reduced to £78, and remained at that sum until 1892. From that time it was gradually increased until the 1913–14 vote was £2000, with an extra sum of £2132 from surplus balances. The climate, more especially in the summer months, is very hot and dry, therefore the forest officials have had to plant to suit the conditions rather than their own inclinations. The most satisfactory tree for effecting cover on bare hills is *Acacia cyanophylla*, one of the least useful of *Acacias*, but suitable for firewood. Once the ground is covered with this acacia, however, the shade afforded enables seedlings of *Pinus Pinea*, *P. halepensis* and other trees to obtain foothold. In some instances, where considerable areas have been covered by trees, a heavier rainfall has been recorded since 1911. Thus on p. 15, with reference to Salamis plantation which covers an area of three square miles, the total mean rainfall for the seven years 1904–5 to 1910–11 was 14·72 ins., and the total mean rainfall for the two years 1911–12 to 1912–13 was 24·53 ins., the records, however, need to be taken over a longer period to prove whether the increase is really due to tree growth. Swampy land has also been reclaimed by judicious planting. For firewood, *Acacia cyanophylla* is grown on a six-years' rotation, and the result of the 1913 cutting in the Salamis plantation was a net revenue of £1 9s. 5cp. per acre, equivalent to 4s. 8½cp. per acre per annum from land which, previous to planting, was worthless. In Nicosia the price of firewood is 22s. a ton. Numerous photographs give an idea of the country before and after planting, whilst lists of trees indicate failures and successes. w.D.

\* A Report on Plantation Work in Cyprus from 1879 to 1914, by A. K. Bovill, Principal Forest Officer.